

HOW DOES CENTRAL BANK INDEPENDENCE  
AFFECT THE CONDUCT AND OUTCOME OF  
MONETARY POLICY? : A CASE STUDY : BANK OF  
ENGLAND VERSUS BUNDESBANK

Kathrin Kahrab

A Thesis Submitted for the Degree of MPhil  
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**HOW DOES CENTRAL BANK INDEPENDENCE  
AFFECT THE CONDUCT AND OUTCOME OF  
MONETARY POLICY?**

**A CASE STUDY:  
BANK OF ENGLAND VERSUS  
BUNDESBANK**

submitted

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for the degree of

**Master of Philosophy in M.E.P.**

in

February 1996

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**I dedicate this thesis to;**

My parents and grandparents, for their support throughout the past two years, and without whom I would not have been able to come to St. Andrews.

The university and town of St. Andrews, which have provided me with countless friends and experiences I would otherwise not have had, and a perfect home.

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The coastline of St. Andrews and the stunning sunsets carried me through my two years in St. Andrews, not to forget the espressos in Luvians and the beverages in the local pubs ...

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## ABSTRACT

The question whether monetary policy should be subject to discretion or whether some kind of rule should be imposed upon its conduct has been and is subject to intensive debate. The theoretical rationale for central bank independence is to be found in the 'time-inconsistency' literature, which demonstrates that if monetary policy is entrusted in discretionary fashion to policy makers, they have an incentive to renege on their precommitment since they favour short-run output gains. The public forms expectations about the credibility of a pre-announced strategy of the policy maker. It is argued that an independent monetary authority, which is committed to price stability, would be an accountable player in the monetary policy game, removing the need for the wage bargainers to protect themselves against inflationary surprises.

Many studies have been dedicated to approach the 'case for central bank independence' from the empirical side. Various indices of central bank independence have been developed, based on an uniform assessment procedure which allows a comparison of alternative monetary arrangements according to their degree of independence.

An inverse relationship between the rate of inflation and central bank independence is generally advocated. The empirical findings, however, suggest a less clear-cut relationship than that claimed by the theoretical literature.

To allow a well-founded statement about how central bank independence affects the conduct and outcome of monetary policy, one needs to look at different monetary regimes. The Bank of England, politically dependent on the government, and the independent German Bundesbank have been chosen as test cases. The inflationary



performance of Germany has been on average better and more stable when compared to the United Kingdom's record. The respective monetary arrangement determined and had at times decisive influence on policy decisions. The discretionary regime in the United Kingdom allowed the authorities recourse to expansionary monetary policies, whereas this was impossible for the German government, since the Bundesbank conducts its policy independent from government directives and adheres to its pre-eminent task of safeguarding the currency.

It is concluded that an independent central bank which is committed to price stability generates a better inflationary outcome than that achieved with a discretionary conduct of monetary policy. Furthermore, autonomy and the commitment to protecting the internal value of the currency are important devices for building an anti-inflationary reputation.

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“I cannot help but conclude that ultimately the only way central banks can achieve their goals is if their integrity is without question and people have confidence in the policies they pursue. At the end of the day, it is public confidence that is a central bank's most precious commodity in an economy”.

McDonough (1994, p. 6)

# **CHAPTER I**



# The Case for Central Bank Independence

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## 1.1 Introduction

In the past years, there has been a growing acceptance of the view that the primary purpose of monetary policy should be to maintain stable prices. This reflects the realisation that the statistical relationship captured by the Phillips-curve does only exist in the short-run, provided inflation is unanticipated<sup>1</sup>. The negative effects of attempts to exploit the suggested trade-off between inflation and employment became dramatically apparent in the 1970s, leaving economies in a state of stagflation<sup>2</sup>.

Inflation is a monetary phenomenon, a tax on financial wealth and can severely damage the real economy or even lead to its total collapse. Disinflation always proves difficult and painful and can involve substantial costs in form of lost output and employment. The costs of inflation depend on its sources<sup>3</sup>, whether it was anticipated, and on the institutional structure of the economy. Unanticipated inflation is particularly damaging since the time path of prices, in this case, is uncertain. The cure of unanticipated inflation is the more costly one, whereas a fully anticipated inflation<sup>4</sup> could be regarded as less socially disruptive in its continuation. It does, therefore, not seem surprising that living with inflation is sometimes seen as an acceptable option,

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<sup>1</sup> Although there are only imprecise information, with little empirical regularity, about the length of the so called short-run period, an average length of three to five years is assumed until monetary expansion has passed entirely on to prices.

<sup>2</sup> Findings by Barro (1995, p. 166) show that the median inflation rate was 3.3% p.a. in the 1960s, for a sample of 117 countries, 10.1% in the 1970s (122 countries), and 8.9% in the 1980s (119 countries).

<sup>3</sup> Results of a study by Banaian/Laney/Willett (1983) on the significance of pressures for monetary accommodation in twelve industrial countries show that the monetary authorities were more responsive to domestic pressures (fiscal deficit and wage increases) than to pressures of foreign origin, which suggests that the sources of inflation may be found more often at home than abroad even in an open economy.

<sup>4</sup> The rate of change of the overall price index is correctly foreseen over the relevant period and this foresight is acted upon. (Laidler, 1990, p. 52)

rather than trying to reduce it. Nevertheless, the costs of anticipated inflation should not be underestimated, which are more than just costs associated with attempts to economise on non-interest bearing money balances (so-called 'shoe-leather costs'). The continuous price changes, the spreading and collecting of information about them (so-called menu costs), and the operation of a less than perfectly indexed tax system consume a considerable amount of real resources. Furthermore, even if fully anticipated inflation is assumed, there is no automatism which ensures that all prices are changed at the same time. Relative prices can fluctuate while changes of the overall price index follow a predictable pattern.

The costs which arise when inflation cannot be anticipated fall into three categories, (i) costs arising from the misallocation of resources, (ii) costs reflecting distributional effects of unanticipated changes in inflation, and (iii) costs related to anticipating inflation and offsetting its unwanted effects. Prices have a crucial role in an economy since they convey all the information needed to guide resources to their optimal allocation, essential to secure the functioning of a market economy. Inflation, however, undermines this role as it makes the information about relative prices less reliable and more difficult to interpret. It becomes harder to distinguish between changes in relative prices and changes in the average price level. Furthermore, inflation can have a significant impact on the distribution of income and wealth, in particular between creditors and debtors. Unexpected inflation reduces the real burden for the debtor and does damage to the creditor's interest. *"Like theft, inflation is just the redistribution of income by stealth"*<sup>5</sup>. In a world of variable inflation, the possibility increases that economic agents favour the investment in short-term projects to reduce the risk of return. Inflation will tend to reduce the rate of investment by companies. Savers and lenders may try to reduce their risk by demanding a risk premium, which directly affects the willingness of private agents to borrow.

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<sup>5</sup> Governor in the inaugural LSE Bank of England lecture (1992, p. 445)

Monetary policy has often been and is used as a policy instrument to influence the public's behaviour, due to the possible short-run effect of a monetary expansion on real variables. Instability of policy can lead to a dramatic loss of public confidence in governmental institutions and in their conduct of actual and future policy. Considering the damage inflation does to the economy it is desirable to follow a credible anti-inflationary path in monetary management. Nevertheless, the actual conduct of monetary policy in many countries lacks stability and predictability, and produces frequently excess money growth. Many studies and papers have been dedicated to analyse this problem and to point out possible solutions and devices which would create stability. The intellectual controversy dealing with the question of the optimal monetary arrangement is referred to in the literature as the 'rules versus discretion debate'.

Game-theoretical studies, in particular the pioneering work by Kydland and Prescott (1977), provided valuable insights into the incentive structure of policy makers and identified the existence of the phenomenon of 'time-inconsistency of policy', the temptation of policy makers to behave in a short-sighted manner. Governments face a multiplicity of objectives which they try to achieve with a given set of policy instruments. Such objectives are rarely complementary and often stand in conflict with one another. An elected policy maker has both inflation and output preferences as well as the incentive to get re-elected<sup>6</sup>. Priorities in the policy maker's objective function can change over time, according to changes in the public's preferences, in the political environment, etc., and, therefore, directly affect the conduct of policy. Policy makers value surprise inflation as a means to improve their re-election prospects, since it generates short-run output gains and may help to manipulate the public's behaviour<sup>7</sup>. This leads to a lack of credibility, whenever monetary policy is entrusted,

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<sup>6</sup> Cukierman/Meltzer (1986, p. 11)

<sup>7</sup> "Inflation is about the honesty of government policy". (Governor, 1992, p.447).

in discretionary fashion, to the policy maker. Expectations concerning the behaviour of the other 'player' (policy makers versus the public), to determine the choice of the best possible strategy under given conditions, are of crucial importance in this policy game. Consistency of monetary policy is the key to credibility, being commonly defined as the expectation that the monetary authority does not renege on a pre-announced strategy<sup>8</sup>. Uncertainty about the outcomes should be replaced by an accountable and credible monetary policy. Stability and an anti-inflationary outcome seem, therefore, better ensured if one either imposes rules on the conduct of monetary policy or if an independent central bank is entrusted with the monetary management. The latter two options have been put forward in the literature as alternatives to a discretionary monetary regime.

Since the economy is frequently subject to disturbances which are only incompletely predictable in their frequency of occurrence and in their amplitude, a certain degree of flexibility on the part of monetary policy is needed to be able to offset shocks and to achieve a socially acceptable outcome. The central problem is, therefore, to find the optimal trade-off between flexibility required to perform the stabilisation role and the constraints needed to prevent inflation. This chapter reviews and discusses the merits of different game-theoretical approaches put forward in this context, which try to find the best possible solutions to the problem of time-inconsistency of monetary policy. At the end of the review, an argument in favour of the alternative to establish an independent central bank is put forward, since this kind of institutional arrangement appears to be superior in comparison to a discretionary as well as to a rule-based conduct of monetary policy.

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<sup>8</sup> Credibility according to Drazen/Masson (1993, p. 2) is more complex than that and is described as "*the desire to carry out a policy and the ability to deliver on a promise in unfavourable circumstances*". The findings suggest that the policy-maker will renege on his commitment if circumstances are bad enough. Credibility, therefore, does not only reflect "the intention of the policy-maker, but also the state of the economy, where stochastic shocks will be important (p. 25).

## 1.2 Time-Inconsistency of Policy

Kydland and Prescott (1977) argue in their widely acknowledged article '*rules rather than discretion*' that, although policy makers possess information about the timing and magnitude of their actions, the decisions taken do not result in the social objective function being maximised. Kydland and Prescott identify as reason for this paradox the existence of a time-inconsistency problem faced by policy makers, which is anticipated by rational economic agents. They conclude that optimal control theory cannot be applied to processes of economic planning when expectations are rational. This argument is based on the conviction that rules, imposed on the conduct of policy, would help to improve the economic performance relative to a discretionary regime.

The optimal control theory can be defined as "*an appropriate planning device for situations in which current outcomes and the movement of the system's state depend only upon current and past policy decisions and upon the current state*"<sup>9</sup>. This seems rather unlikely to be the case in dynamic economic systems where economic agents try to take future policy actions into account while forming their expectations. Therefore, already the slightest departure from the assumption of the invariance of expectations to future policy actions results in a rejection of the optimal control theory for the case of economic planning. Priorities in a policy maker's set of objectives can change over time as a result of changing economic conditions which will lead to changes in the policy maker's decisions. Lucas<sup>10</sup> argued in this context that policy changes induce changes in the structure, which require a re-estimation of, and future changes in, policy. In fact, policy makers fail to take into account the effect of changes in their policy rules upon the decisions of economic agents.

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<sup>9</sup> Kydland/Prescott (1977, p. 474)

<sup>10</sup> Lucas (1976)



Kydland and Prescott define consistent policy as follows; a policy  $\pi$  (while  $\pi = \{\pi_1, \pi_2, \dots, \pi_T\}$  is a sequence of policies for period 1 to T) is consistent if, for each time period  $t$  ( $t=1, \dots, T$ ),  $\pi_t$  maximises the social objective function  $S(x_1, \dots, x_T, \pi_1, \dots, \pi_T)$ , taking as given previous decisions,  $x_1, \dots, x_{t-1}$ , and that future policy decisions ( $\pi_s$  for  $s > t$ ) are similarly selected<sup>11</sup>. Consistent policy, however, produces a sub-optimal outcome, as demonstrated by Kydland and Prescott, using a two-period example. The underlying assumption of the analysis is that the decisions of the economic agents depend upon all policy decisions and their past decisions expressed as follows:

$$x_t = X_t(x_1, \dots, x_{t-1}, \pi_1, \dots, \pi_T) \quad t=1, \dots, T \quad (1)$$

An optimal policy decision is that which maximises  $S$  under the constraint given by (1). For a plan to fulfil the consistency criteria, the policy has to be selected so as to maximise the social objective function  $S$ . In a two-period scenario ( $T=2$ ),  $\pi_2$  has, therefore, to maximise (2), given the past decisions  $\pi_1, x_1$  and the constraint (3).

$$S(x_1, x_2, \pi_1, \pi_2) \quad (2)$$

subject to

$$x_1 = X_1(\pi_1, \pi_2)$$

and

$$x_2 = X_2(x_1, \pi_1, \pi_2). \quad (3)$$

The first-order condition for the optimal decision rule is zero. A consistent policy would only be optimal if the effect of  $\pi_2$  upon  $x_1$  is zero. Kydland and Prescott conclude that consistent policy is sub-optimal, since it ignores the effect of future policy  $\pi_2$  upon the present decisions  $x_1$  of the economic agents. *"Suboptimality arises because there is no mechanism to induce future policy makers to take into consideration the effect of their policy, via the expectations mechanism, upon current decisions of agents"*<sup>12</sup>. Furthermore, this analysis has direct implications for the policy maker's way of conducting policy. The results suggest that policy makers

<sup>11</sup> Kydland/Prescott (1977, p. 475)

<sup>12</sup> Kydland/Prescott (1977, p. 481)

should follow rules rather than have discretionary power, since discretion implies selecting the decision which is best for the current situation, which either results in a consistent but sub-optimal policy or in economic instability<sup>13</sup>.

### 1.3 Barro and Gordon and the Reputation-Building Approach

Barro and Gordon (1983) employed in their study the time-inconsistency model of Kydland and Prescott and analysed the problem as a repeated monetary policy game. They showed that reputational forces can substitute for formal rules, which is brought about through the existence of public sector expectations. The analysis suggests that a low inflation rate can be sustained in the absence of institutional or legislative constraints through a system of rewards and punishments which leads to a gradual reputation-building. The policy maker faces a social loss function over output and inflation and is asked to minimise the welfare loss by resolving this optimisation problem in the best possible way. The cost function for each period for the policy maker's objective is given by

$$z_t = (a/2)(\pi_t)^2 - \bar{b}_1(\pi_t - \pi_t^e) \quad \text{with } a, \bar{b}_1 > 0 \quad (1)$$

( $\pi$  - inflation).

The first term expresses the costs of inflation while the second stands for the benefits generated from surprise inflation. The quadratic form in term one means that the inflationary costs rise at an increasing rate with the rate of inflation. The policy maker is asked to minimise the expected present value of these costs. When he has discretionary power over the conduct of monetary policy, the policy maker controls the set of monetary instruments which enable him to choose the rate of inflation  $\pi$  in each period. It is assumed that some short-run benefits can be obtained, when the actual inflation rate exceeds the expected inflation rate in period  $t$  (generating of

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<sup>13</sup> Kydland/Prescott (1977, p. 487)

surprise inflation). These short-run benefits are derived from the Phillips-curve, where an unanticipated monetary expansion leads to a stimulation of real economic activity until expectations catch up and offset such benefits. Furthermore, the natural unemployment rate is subject to disturbances (supply shocks) and is therefore volatile. Because of the existence of disturbances, governments value stimulative policy actions which lower the unemployment rate. The economic agents know the policy maker's incentive to renege on the promise to keep inflation low ('cheating') and behave rationally by taking the policy maker's nature into account, while negotiating the wage contracts. Wage demands are, therefore, marked-up by adding an inflationary compensation percentage<sup>14</sup>. The aim is to equalise with the anticipated inflation rate the size of the intended output stimulation by the policy maker via the printing of high-powered money. The result is a discretionary equilibrium with the output remaining at its natural level and an inflation rate which is different from zero.

Barro and Gordon investigate three different scenarios; (i) monetary policy under discretion, (ii) under a rule, and (iii) under 'cheating' and examine the respective costs which these policies impose on the economy. In the first scenario, the current inflation rate  $\pi_t$  is chosen by the policy maker in such a way which minimises the expected costs for the current period,  $Ez_t$ , while treating the current,  $\pi_t^e$ , and future inflationary expectations,  $\pi_{t+i}^e$ , as given. Future costs and expectations are considered independent of the policy maker's present actions (equation D[1]). Assuming rational expectations, the economic agents try to predict as well as possible the value of  $\pi_t$  (D[2]). Since inflation shocks are zero in equilibrium, the inflation costs  $z_t$  depend only on  $\pi_t$  (D[3]).

$$\hat{\pi}_t = \bar{b}/a \quad D(1)$$

$$\pi_t^e = \hat{\pi}_t = \bar{b}/a \quad D(2)$$

$$\hat{z}_t = (1/2)(\bar{b})^2/a \quad D(3)$$

<sup>14</sup> Blake/Westaway (1992, p. 4)

In the second scenario, policy under a rule, the policy maker commits himself at the outset to a rule for determining inflation. At the moment where the policy maker tries to set the rule, he has only limited information available at date  $t$ . Therefore, the policy maker can condition the inflation rate,  $\pi_t$ , only on parameters which are also known to the economic agents. He chooses  $\pi_t$  and  $\pi_t^e$  together, subject to the condition that  $\pi_t^e = \pi_t$ . The latter term, which involves the inflation shock, drops out of the cost function in equation (1). The remaining term in (1) suggests that the best rule to follow prescribes zero inflation. The costs of this option are calculated under a rule from equation (1) as

$$z_t^* = 0 \quad R(1)$$

The third scenario describes the situation where the policy maker reneges on his pre-commitment, since he expects benefits from cheating the public. Assuming that the public's inflationary expectations are  $\pi_t^e = 0$ , formed at the beginning of period  $t$ . If the policy maker treats these expectations as given, he chooses the same  $\pi_t$  as under discretion ( $D[1]$ ). The costs involved in this policy choice are

$$EZ_t = - (1/2)(\tilde{b})^2/a. \quad C(1)$$

The results suggest that the outcome of monetary policy under cheating and under a rule is less costly than under discretion. The cheating solution, however, involves the least costs<sup>15</sup>. The question that arises in this context is what rule should be imposed? A pre-commitment to zero inflation appears to be the ideal rule since it minimises the welfare loss. Barro and Gordon argue that a rule delivers only a second-best solution to the problem compared to cheating, when people do not anticipate the rule, which brings about better results. That is because surprise inflation eliminates part of the

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<sup>15</sup> Barro/Gordon (1983, p. 108)

existing distortions in the economy. The precondition for this outcome is, as Barro and Gordon argue, that the inflationary expectations remain at a low level.

By taking the repeating character of the game into account, it is possible to use the potential loss of reputation and credibility as an enforcement mechanism for a rule. The enforcement power of the rule must at least balance the temptation to create surprise inflation. Cheating in the current period generates an increase in inflationary expectations for the next period. Private agents form their expectations as follows

$$\text{if } \pi_{t-1} = \pi^e_{t-1} \quad \text{then } \pi^e_t = \pi^*_t = 0 \quad (2)$$

$$\text{if } \pi_{t-1} \neq \pi^e_{t-1} \quad \text{then } \pi^e_t = \hat{\pi}_t = b/a.^{16} \quad (3)$$

Assuming that a rule has been announced which specifies the inflation rate for period  $t-1$  and the inflation rate in the previous period accorded with the expected inflation rate, the private agents trust the government to perform according to the announced rule in the next period,  $\pi_t = \pi^*_t$ . In the case where the government reneges on the rule, leading to a departure from the actual inflation rate from the expected one, the government will lose credibility. The costs of the higher inflation take effect in the next period when people, expecting discretion, build into their wage demands an inflationary mark-up,  $\pi_t = \pi_t$ . Barro and Gordon argue that this pattern of behaviour is rational and refer to it as a 'reward and punishment strategy'<sup>17</sup>.

The policy maker will follow the rule if the enforcement is at least as great as the temptation to cheat. Since the costs for period  $t+1$  are discounted by the factor  $q_t = 1/(1+r_t)$ , the enforceability restriction is

<sup>16</sup> Brociner (1991, p. 5)

<sup>17</sup> Cukierman raises objections against the application of the term 'punishment' strategy, which is borrowed from the industrial organisation literature, to the monetary policy context. He argues that the public goes through a learning process, which imposes constraints on the behaviour of the monetary authority. (See Walsh, 1993, pp. 291-92)



$$\text{temptation} = E(z_t^* - \tilde{z}_t) \leq \text{enforcement} = E[q_t (\hat{z}_{t+1} - z_{t+1}^*)].^{18} \quad (4)$$

This restriction implies that costs, caused by following the rule, must not exceed the expected benefits of cheating. Barro and Gordon show that the ideal rule of  $\pi_t^* = 0$  does not meet the enforceability restriction and is by a given

$$\text{temptation} \quad (1/2)(\bar{b})^2/a \quad (5)$$

and

$$\text{enforcement} \quad q \cdot (1/2)(\bar{b})^2/a \quad (6)$$

not enforceable since the discount factor  $q < 1$  generates a positive gain to cheating, the temptation would always be greater than the enforcement in this case. Therefore, Barro and Gordon try to find the best enforceable rule<sup>19</sup>, which satisfies the enforceability restriction and yields the least costs. Figure 1.1<sup>20</sup> shows the enforceable range of rules.

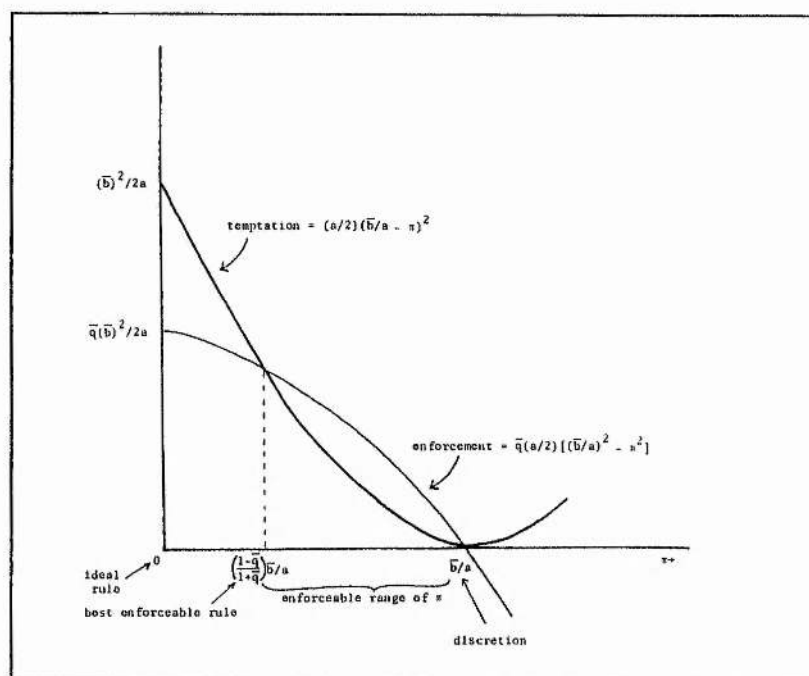


FIGURE 1.1

<sup>18</sup> Barro/Gordon (1983, p. 110)

<sup>19</sup> Barro and Gordon (p. 113) define the best enforceable rule as "a weighted average of the ideal rule and discretion, with the weights depending on the mean discount factor,  $q$ ."

<sup>14</sup> Barro/Gordon (1983, p. 112)

The result of the analysis is a range of enforceable inflation rates depending on the policy maker's discount rate and other factors.

There are certain problems and questions arising from Barro and Gordon's analysis which are worth considering<sup>21</sup>. One main problem with this model is the existence of multiple equilibria, as shown in figure 1.1. Furthermore, the results prove problematic if one assumes a finite time horizon. The public agents would expect the outcome in the last period to be inflationary due to observations by the public, which revealed the true behavioural patterns of policy makers. By unravelling backwards, they would expect high inflation in every period. Therefore, the only sustainable equilibrium in a finite scenario would be the non-cooperative one. A third problem concerns the length of the 'punishment' interval of discretion (in the model assumed to be not longer than one period), which can vary over time for various reasons, such as the 'gravity of the crime'. The latter criticism is linked to another problem arising from the existence of reputational constraints which should prevent the occurrence of longer lasting episodes of high inflation. However, observations of real economic outcomes defeat these implications. In summary it may be said that the model by Barro and Gordon tends to oversimplify, which results in a too stable solution to the problem. However, the findings show the advantage of a rule based monetary policy relative to a discretionary solution and therefore support the case for tying the government's hands in monetary affairs.

### 1.4 Reputational Approach under Uncertainty

One of the criticisms addressed to Barro and Gordon's analysis concerned the reputation-building mechanism and the underlying assumption that a punishment interval of one period is sufficient to establish or restore a reputation. Backus and

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<sup>21</sup> Brociner (1991); Canzoneri (1985)

Driffill (1985) took up this reputational issue in the work of Barro and Gordon and carried out analysis concerning a process by which a policy maker earns a reputation over time, resulting in a reputational equilibrium. Their paper on inflation and reputation extends the work of Barro and Gordon to the scenario, where the public is uncertain whether the policy maker cares about output or inflation.

The underlying behavioural pattern is the policy maker's intention to maintain his reputation as long as possible and to reveal his real nature only in the last period. Backus and Driffill distinguish between two types of policy makers; 'hard-nosed' governments, who always fight inflation to preserve zero-inflation, and 'wet' governments, who maximise their utility function and renege on announced policy. The public's lack of information about the type of government it faces is the critical element in this analysis, which enables the wet government to disguise its real nature and to manipulate the public's expectations. Each player has a different payoff-function<sup>22</sup>. In order to determine his actions, a policy maker evaluates his payoffs by using a recursive structure. A wet government weighs the costs and benefits of defaulting on the announced policy.

Backus and Driffill derived a reputation curve (figure 1.2)<sup>23</sup> which describes the game in relation to the curve. The reputations of the players are described by  $p$  and  $q$ . At the beginning of the play, the initial reputations,  $p_0$  and  $q_0$ , can either lie on or off the curve, but are assumed to be non-zero. An initial randomisation moves the play onto the reputation-curve, as demonstrated in the figure. The play is starting at point A, after the policy maker has randomised to raise its reputation to  $q_0$  the play continues from point B. Once on the curve, the game proceeds by repeating randomisation until one of the players surrenders. In the case where one side concedes, the reputation of this player jumps immediately to zero.

<sup>22</sup> Backus/Driffill (1985a, p. 532)

<sup>23</sup> Backus, D./Driffill, J. (1985b, p. 217)

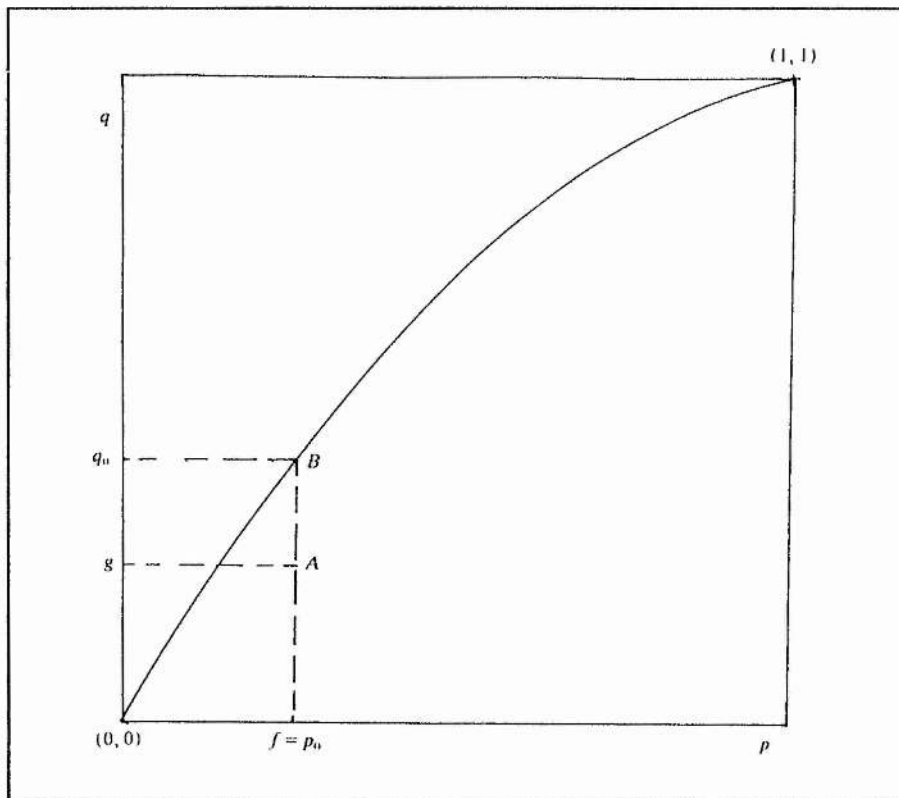


FIGURE 1.2

The government's ability to manipulate its reputation forms the core of the set-up. Supposing the government enters period  $t$  with a reputation  $p_t$ , equal to the public's estimation of the probability (gained through observations) that the government is hard-nosed. If one assumes that the value of  $p_t$  is known to both players, both then choose their best strategies by taking the strategy of the other player and the impact of current behaviour on future reputation into account. Since the public lacks information about the real nature of the policy maker, it tries to gain it via observations. The public forms its inflation expectations by maximising its payoffs in period  $t$ , depending upon the probability that the government is hard-nosed. The longer a wet government succeeds in not inflating, the more the public agents revise the probability upwards that the government is hard-nosed, according to a Bayes' rule<sup>24</sup>. If the public observes inflation, the policy maker's type is automatically revealed with certainty, since a hard-nosed government would never inflate the

<sup>24</sup> Backus/Driffill (1985a, p. 533); Brociner (1991, p. 10)

economy. This observation leads to changes in the expected value of inflation by the public. The policy maker's reputation goes down to zero. Backus and Driffill argue that in this game probability proves to be a "*sufficient statistic for past play and contains all the relevant information needed by the players to make optimal decisions*"<sup>25</sup>.

The analysis results in a model which is dynamically consistent. Backus and Driffill conclude from their analysis that in a "*game with a sufficiently long time horizon,... for any nonzero initial reputation ( $p_1 > 0$ ) there will be an initial period (which tends to infinity as the horizon tends to infinity) in which zero inflation is the equilibrium outcome*"<sup>26</sup>. This result stands in contrast to Barro and Gordon's findings in their repeated static model which conclude that a zero-inflation rate is not enforceable in a game with infinite time horizon. The reason for this major difference in the obtained results lies in the Backus-Driffill assumption that the punishment lasts until the end of the game. The argument is that the public is not myopic as presented by Nordhaus (1975), it simply does not have access to all the information but gains information when the game proceeds via observations (the learning process). Furthermore, Backus and Driffill's findings suggest that a government which seeks re-election may even restrain its spending to preserve its reputation, which stands in direct contrast to arguments put forward by the political business cycle theory. Backus and Driffill's analysis shows how a reputation of being hard-nosed affects the public's behaviour, which implicitly suggests that monetary arrangements should be designed in such a way that recourse to a 'wet strategy' is made impossible. Backus and Driffill also considered the possibility of increasing the credibility and minimising the uncertainty of monetary policy by appointing central bankers with an anti-inflation reputation: This idea forms the core of Rogoff's analysis which will be presented in the following section.

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<sup>25</sup> Backus/Driffill (1985a, p. 533)

<sup>26</sup> Backus/Driffill (1985a, p. 536)

## 1.5 Rogoff and the Optimal Degree of Commitment

In 1985, Rogoff carried out a study in which he formulated possible institutional responses to the time inconsistency problem, in particular by examining the alternatives of appointing a 'conservative' central banker to head the central bank or by providing the central bank with incentives to hit an intermediate monetary target<sup>27</sup>. He argues that it is possible to improve the overall outcome for society by appointing a central banker with preferences other than those expressed in the social utility function, who places a relatively greater weight on low inflation than society does. The underlying assumption of the analysis is the existence of distortions in an economy which cause a sub-optimal rate of employment. Once wages are set, economic agents fear that the government undertakes actions to raise employment via monetary expansion to eliminate these distortions. This fear is made concrete in an inflationary mark-up which is added to the normal wage demands.

Rogoff considers three possible solutions to reduce inflationary wage bargains and suggests as first-best solution to the problem the removal of the distortion in the labour market which could raise employment and lower inflation, provided that it is not too costly. If the first-best solution cannot be achieved at low social costs, the second-best alternative would be to legally impose a complete state-contingent money supply rule. The design of such a rule gives rise to a number of problems, such as that the enforcement of a rule should be done in such a way that it is difficult to change. This, however, involves the danger that it could be difficult to alter the rule when it becomes outdated, because of changes in the qualitative nature of shocks, which could not be predicted at the time of its design. The enforcement of such a rule would prevent surprise inflation but does not leave the central bank with sufficient latitude to perform efficiently its stabilisation role. Therefore, a rule of the described nature can prove unsatisfactory. Should solution one and two turn out to be either too costly or

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<sup>27</sup> Rogoff (1985, p. 1170)



unachievable, Rogoff suggests a third-best solution, the appointment of a conservative central banker, who places greater, but not infinitely greater, weight on inflation stabilisation than society does<sup>28</sup>. This provided the society can improve its welfare. If the central bank would place an infinite weight on inflation stabilisation, inflation could be brought down to its socially optimal level, but any supply shock would pass entirely through unemployment. The third-best option assumes knowledge of the preferences of the central banker who is subject to appointment. Although complete certainty about the policy maker's preferences cannot be obtained, Rogoff argues that already the existence of some information on the probable preferences of the candidate is enough justification for the result of the analysis. Rogoff comes to the conclusion that *"in the presence of a labour market distortion it is optimal to choose an agent to head the central bank who places a greater, but not infinitely greater, weight on inflation than society does."*<sup>29</sup>. An increase in the central bank's commitment to fight inflation leads to a decreasing average inflation rate but alters the latitude of monetary policy to respond to supply shocks. Rogoff argues in favour of flexible regimes in monetary policy in order to make stabilisation possible and also for a sufficiently stable and credible monetary framework to bring inflation down to a socially optimal level.

The last part of Rogoff's paper is dedicated to an examination of four different forms of targeting; (1) inflation rate targeting, (2) nominal GDP targeting, (3) money-supply targeting, and (4) nominal interest rate targeting. The optimal target choice depends on a multitude of factors, such as the relative size of the disturbance. Rogoff argues that inflation rate targeting 'works well', if there are no long-term time lags in the monetary transmission mechanism. However, in the case where supply shocks are important, society may prefer to give the central bank the incentive to pursue a

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<sup>28</sup> Blake and Westaway (1992) demonstrated that in the case where the model displays persistence to output shocks, it is possible to appoint a central banker who is too conservative.

<sup>29</sup> Rogoff (1985, p. 1179)

monetary target other than the inflation rate<sup>30</sup>. Nominal GDP targeting might be better than inflation rate targeting when supply shocks are large. But this alternative can have an inflationary bias, if the nominal GDP target is consistent with the socially optimal rate of employment rather than the lower natural rate. Similar problems could arise from money supply targeting, if the next period's expected rate of inflation is set at the socially desired rate rather than at the higher time consistent rate. Concerning the fourth alternative, Rogoff demonstrates that low interest rate targeting is counterproductive, presents a credibility problem, and actually raises the time-consistent inflation rate. Once wages are set, the central bank would have an incentive to increase the money supply to lower interest rates.

The problem solution provided by Rogoff does not incorporate any reputational elements, due to the employed time-frame of one period, contrary to studies by Barro and Gordon and Backus and Driffill. Rogoff's solution to the time-inconsistency problem differs from those put forward by previous models. His study made an important contribution to the ongoing debate about the optimal institutional and legal outlook of a credible monetary authority.

## **1.6 The Role of Private Information in a Monetary Policy Game**

The model to be discussed next was developed by M. Canzoneri (1985) who sheds some light on the role of private information in the monetary policy game. The assumption that the policy maker's forecast of money demand is private information forms the starting point of the analysis. Policy makers have control over the money supply and therefore over the rate of inflation. To eliminate the inflationary bias one could tie the hands of the monetary authority, if there were no benefits to the society from retaining a certain degree of flexibility in monetary policy. The problem is to

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<sup>30</sup> Rogoff (1985, p. 1187)



find the optimal trade-off between stabilising flexibility and the inflationary bias eliminating constraints on the conduct of monetary policy.

An economy is frequently subject to various kinds of disturbances which can be expressed as follows

$$g_t - \pi_t = \partial_t.$$

The difference between the money growth rate  $g$  in period  $t$  and the rate of inflation  $\pi$  in  $t$  yield the value of the disturbances  $\partial$ . Disturbances consist of two elements; the forecasted value of the disturbance,  $e_t$ , and the forecast error,  $\hat{e}_t$ .

$$e_t + \hat{e}_t = \partial_t$$

Taking now the existence of private information into account creates the following scenario. The policy maker's goal is to maximise the social utility function which is given by

$$US_t = - (y_t - k\bar{y})^2 - s(\pi_t - \pi^*)^2 ; \text{ with } k > 1,$$

where  $\pi^*$  is the optimal rate of inflation and  $y$  stands for the equilibrium rate of output. Policy makers perceive, from a social point of view, the natural rate of employment  $y$  as too low and have, therefore, the temptation to raise output to  $ky$  via monetary expansion. When the public observes inflation it cannot tell whether it is the result of an accommodated disturbance or if the policy maker reneged on the pre-commitment.

The monetary authority tries to forecast disturbances before setting the target growth rate of money in this period. If information symmetry is assumed, both the central bank and the wage setters observe  $e_t$  at the same time. In a situation of information

asymmetry, the public agents do not have this information at the time they negotiate their wage contracts. The wage setters have the following utility function

$$UW_t = -(g_t - g_t^e - \partial_t)^2$$

and try to form expectations regarding the money growth rate  $g_t^e$ , at the time they negotiate the contract on the basis of their knowledge of the monetary authority's utility function and the expectation that  $\partial_t$  is zero. The public is only able to obtain information about the disturbances at the end of the contract period  $t$ . However, wage setters cannot decompose the disturbance into its elements. The policy maker's utility function can be expressed as follows

$$UF_t = -(g_t - g_t^e - \partial_t - y^*)^2 - f(g_t - \partial_t - \pi^*)^2$$

where  $UF_t = US_t \theta^2$ ,  $f = s \theta^2$  and  $y^* = (k - 1) \bar{y} \theta$ ;  $\theta y^*$  (with  $y^*$  = optimal rate of output, and  $y$  = equilibrium rate of output) is the difference between the players' output goals<sup>31</sup>. The policy maker sets the target money growth rate to maximise the expected value of the social utility function, knowing the public sector's expectations and its own forecast of  $\partial_t$ . The outcome of this scenario is a non-cooperative solution which can be found by unravelling backwards the decisions that the players have to make. It can be described as follows

$$\begin{aligned} g_t^{nc} &= \pi^* + e_t + y^*/f, \\ g_t^{e,nc} &= \pi^* + y^*/f, \\ y_t &= \bar{y} - \theta \hat{e}_t, \quad \pi_t = \pi^* + y^*/f - \hat{e}_t, \\ EUF_t^{nc} &= -(1 + f) \partial_e^2 - [1 + (1/f)] y^{*2}, \\ EUW_t^{nc} &= -\partial_e^2. \end{aligned}$$

One arrives at a Nash solution where neither player can expect to do better, given the strategy of the other. In this non-cooperative solution, the public tries to set the wage inflation high enough to keep the monetary authority from giving in to the temptation to inflate and to assure that it only accommodates the forecasted money demand

<sup>31</sup> Canzoneri (1985, p. 1060)

disturbance. The inflationary bias of this solution is equal to  $y^*/f$ . The result is sub-optimal since it leaves the economy in a state of stagflation<sup>32</sup> with a rate of employment which is too low and a level of inflation which is too high. A better result (ideal solution<sup>33</sup>) could be achieved by eliminating the inflationary bias without reducing the output rate

$$\begin{aligned} g_t^c &= \pi^* + e_t, & g_t^{c,c} &= \pi^*, \\ y_t &= \bar{y} - \theta \hat{e}_t, & \pi_t &= \pi^* - \hat{e}_t, \\ EUF_t^c &= - (1 + f) \theta^2 - y^{*2} > EUF_t^{nc}, \\ EUW_t^c &= EUW_t^{nc}. \end{aligned}$$

In this case, the monetary authority fully accommodates the predicted money demand disturbance, but does not try to alter the rate of output via inflation. This solution is cooperative and efficient since no other set of strategies can make one player better off without making the other worse off. Nevertheless, as pointed out in previous papers the existence of the phenomenon of time-inconsistency of policy jeopardises the ideal solution and proves as problematic. If the wage setters commit themselves to the cooperative strategy, the monetary authority gains room to manoeuvre towards an inflationary outcome. Under these circumstances the policy maker will renege on its announced pre-commitment and abandon the co-operative strategy in favour of a cheating strategy

$$\begin{aligned} g_t^{ch} &= \pi^* + e_t + y^*/(1 + f), \\ g_t^{c,ch} &= \pi^*, \\ EUF_t^{ch} &= EUF_t^c + y^{*2}/(1 + f), \\ EUW_t^{ch} &= EUW_t^c - y^{*2}/(1 + f). \end{aligned}$$

Comparing the welfare losses, the cheating strategy generates a welfare gain for the government relative to the outcome of the cooperative solution, whereas the public experiences a welfare loss. Since wage setters know the policy maker's temptation to

<sup>32</sup> Rogoff (1985)

<sup>33</sup> Canzoneri (1985, p. 1060)

inflate, they will almost surely play non-cooperative, unless the government can be credibly pre-committed to the ideal policy.

In the case of information symmetry the public knows the value of the forecasted money demand disturbance and can, therefore, control whether or not the policy maker follows the rule. If information asymmetry prevails, the public lacks information since the policy maker does not disclose its forecast data. Canzoneri argues that a solution to the pre-commitment problem would be relatively easy to find, if information asymmetry is not taken into account. But if the monetary authority's forecast of money demand is indeed private information, a solution to the problem seems much harder to come by, since the public cannot easily verify the policy maker's intentions. *"No stable resolution of the credibility problem can rely on the Fed's own announcement of its forecast if the Fed has an incentive to misrepresent; the resolution must be, ..., incentive compatible"*<sup>34</sup>.

Canzoneri takes up the idea of reputation-building in the approach of Barro and Gordon, reformulates it, and shows, despite the assumption of information asymmetry, reputation can still act as a constraint. As earlier discussed in the Barro and Gordon model, wage setters behave rationally and revert to a non-cooperative strategy of wage setting in this period, when the policy maker has reneged on his promise to follow an anti-inflationary policy in the last period. Canzoneri introduces private information in the described scenario and reformulates the model. Wage setters observe the money demand disturbance  $\partial_t$  at the end of the period, but are not able to decompose it into its elements. The lack of information, therefore, does not lead to a reversion of the wage setting strategy when  $g_t > g_t^c = \pi^* + e_t$ . It is possible to have a reversion triggered if  $g_t > \pi^* + \partial_t + \hat{e}$ , where  $\hat{e}$  is an appropriately chosen constant. The probability of a reversion can be expressed as follows

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<sup>34</sup> Canzoneri (1985, p. 1057)

$$P(g_t - g_t^c - \bar{\epsilon}) = \Pr[\hat{\epsilon}_t < g_t - g_t^c - \bar{\epsilon}],$$

where  $P(\cdot)$  is the cumulative distribution function of the policy maker's forecast error. When the policy maker reneges and  $g_t > g_t^c$ , it increases the probability of a reversion next period. Similarly, if  $\bar{\epsilon}$  is lowered, the probability of higher inflationary expectations increases. If  $\bar{\epsilon}$  is set small enough, it imposes a constraint on the policy makers' behaviour, namely not to create excess inflation. Canzoneri demonstrates that it is possible to combine accountability (policy rule) of monetary policy with a sufficient degree of flexibility, necessary to perform the stabilisation role.

Canzoneri's analysis does not consider any learning on the part of the public sector, and suffers therefore from a lack of dynamics. Since information asymmetry prevails, wage setters are not able to decompose the observed disturbance into its elements. There is no mechanism by which the public gains knowledge or makes inferences about the policy maker's type. Instead, Canzoneri introduces the constant  $\bar{\epsilon}$  in his analysis, which is chosen by the public and imposes a constraint on the policy maker's behaviour which keeps him from creating excess inflation. Canzoneri argues that some rule or discipline must be placed on central bank's behaviour to resolve the credibility problem and to achieve a better outcome, while sufficient stabilising flexibility needs to be maintained at the same time.

## 1.7 A Positive Theory of Discretionary Policy

Cukierman and Meltzer (1986) offer in their paper an explanation of the policy maker's preference for discretionary policy, which is based upon two major elements, the government's desire to maximise its re-election prospects, and the existence of an asymmetric information structure<sup>35</sup>. They put forward a positive theory of

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<sup>35</sup> See also Canzoneri (1985)

discretionary policy and investigate the welfare implications of retaining this policy. Cukierman and Meltzer's analyses shall not be discussed in great detail, but the following paragraphs will give an overview of the major findings and implications of the analyses carried out.

The analysis is based on the assumption that politicians are 'political entrepreneurs' who try to maximise the likelihood of getting re-elected. This assumption is in accordance with a widely-held view concerning the behavioural patterns in democratic institutions in many Western countries. Governments use their instruments to satisfy the socio-economic demands of their members in a game which culminates in the attempt of political parties to maximise their votes in the next national election.

The controversy between rules and discretion suggests two fundamentally different ways of conducting policy. If one assumes that the policy maker's actions are exclusively focused on the maximisation of social welfare, either strategy would lead to a socially optimal outcome. Whereas a policy maker who is primarily interested in the maximisation of support on election day would produce under discretion a sub-optimal outcome for the society. It is important to note that governments with discretionary authority differ in their ability to interpret events and in forecasting the future which results in a qualitatively different outcome. A government with good forecasting ability is likely to produce a better social outcome.

Considering the existence of incomplete information on the part of the private sector, the experienced level of welfare under a particular government acts as an indicator of its forecasting ability and future performance. The policy maker's reaction to the voter's way of tracing knowledge from observations makes the incumbent government act in a way that enhances its re-election prospects, namely by increasing output at the end of its term of office at the expense of future welfare. The resulting

welfare loss is *"directly traceable to the existence of periodic elections, so we call it 'the cost of democracy'. It is larger the greater the frequency of elections"*<sup>36</sup>. These costs will arise as long as information asymmetry prevails. There are two possible ways of eliminating these costs, as suggested by Cukierman and Meltzer, either to disclose unreservedly all information on the side of the government to have a fully-informed public, or to enforce a constitutional commitment to a socially optimal contingent choice of policy instruments. The latter solution would still provide a sufficient degree of flexibility, necessary to perform a stabilisation role in the case of disturbances. Nevertheless, such a commitment involves serious enforcement problems which shall not be discussed here.

Cukierman and Meltzer base their analyses on the following set-up. An economy is frequently subject to disturbances which lie beyond the control of the government. The random state variable  $x_t$ , which expresses the existence of these disturbances, is introduced into the analysis. This random state variable as well as the settings of the policy instruments, described as  $a_t$ , affect directly social welfare. A government comes into power as a result of democratic elections. Elections are held at the end of each office term. The likelihood of re-election increases for the incumbent government proportional to the level of welfare experienced by the public under this government. Welfare in the current period is a result of the employed set of policy instruments in the past and current period. A crucial element in the analyses is that past policies affect past as well as present welfare. The welfare function is expressed by

$$L_t = (a_{t-1} - x_t)^2 + (a_t - x_t)^2.$$

The real value of the disturbance is only observable at the end of period  $t$ . The beginning of period  $t$  is the latest time at which policy instruments can be set, if the policy maker wishes to affect the public's behaviour in the current period  $t$ . The

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<sup>36</sup> Cukierman/Meltzer (1986, p. 368)



government chooses its set of policy instruments on the basis of obtained information about the future. It has to make a choice between two alternatives with different implications for the conduct of policy. If the policy maker wishes to set his instruments before the beginning of period  $t$ , he chooses the path of pre-commitment, which involves a lesser degree of uncertainty. Whereas a government which opts for waiting, specifically until the beginning of period  $t$ , has the chance to obtain additional information. Cukierman and Meltzer refer to these additional information as 'noisy indicators' for the random state variables  $x_t$  and  $x_{t+1}$  which are obtainable through observations on the variables

$$y_t^0 = x_t + \hat{\varepsilon}_t^0 \text{ and } y_t^1 = x_{t+1} + \hat{\varepsilon}_t^1,$$

where  $\hat{\varepsilon}_t^0$  and  $\hat{\varepsilon}_t^1$  are normally distributed white noise processes with zero mean, variance  $\partial_{\varepsilon}^2$ . A higher quantity of available information increases the accuracy of the forecast and enables the government to choose a more optimal set of policy instrument. The government has no incentive to disclose precise information about  $y_t$ . In fact, complete revelation of all available information on the side of the government would preclude the use of economic policy as a tool to improve re-election prospects. The public has gone through changes in welfare and knows the level of welfare,  $L_t$ , experienced in the past periods. It also knows the variance of states of nature,  $\partial_x^2$ . But the public lacks information in the sense that it cannot determine the relative contributions of nature and governmental action to its welfare. Each government is characterised by a different value of noise variance,  $\partial_{\varepsilon}^2$ , which reflects its forecasting ability. This variance is unknown to the public but it tries to make inferences about the noise variance on the basis of the level of welfare experienced during the incumbency period.

Cukierman and Meltzer use an apolitical benevolent government (social planner) as a standard in their model, in order to observe how re-election prospects maximising governments behave. The analysis shows that the loss of welfare for the society



diminishes, when the social planner delays its decision to the latest possible time, which is the start of period  $t$ . This outcome contrasts with the result obtained for the case where a politically motivated government, facing a partially informed public, is entrusted with the well-being of the public. It turns out that the instruments are set optimally in the first period,  $t-1$ .

The model by Cukierman and Meltzer shows that every government which maximises its re-election prospects and possesses private information will choose not to maximise social welfare. The costs of democracy will already emerge whenever a substantial part of the public lacks information. Consequently, the combination of a government with discretionary power with uninformed voters will lead to a sub-optimal outcome, due to the government's behaviour prior to an election. The public expects an increase in welfare before the election and makes the decision whom to vote for on that basis. This leads to a temporary increase in welfare before the election, at the cost of diminished welfare afterwards. The implementation of constitutional rules, as guidelines for the conduct of policy, is regarded by Cukierman and Meltzer as a possibility to eliminate the costs of democracy. The social outcome under discretion, proves unsatisfactory since it is sub-optimal, unless an apolitical social planner is in charge of generating welfare for the society. Therefore, the enforcement of a rule appears to be more agreeable as a possible solution. Various problems arise by implementing such a rule: One major problem being the authority which enforces the constitutional rule must have the same information as the government in order to be able to perform its function properly. The required full transfer of information is, first of all, far from easy and secondly, it may not be desirable in all cases to disclose all available information. As a consequence *"the implementation of a constitutional rule rests ultimately with the ability of the public and the incentives on the government to release all available information."*<sup>37</sup> Nevertheless, even if a constitutional rule is enacted, it does not guarantee non-

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<sup>37</sup> Cukierman/Meltzer (1986, p. 379)

violation of the rule. The government will still be tempted to violate the rule whenever the costs of this violation will occur at a later date to the government than the costs of discretion to the public. This temptation is again directly due to the existence of information asymmetry.

Cukierman and Meltzer conclude from their study that the demonstrated principles *"apply to any area in which current governmental decisions affect welfare beyond the current period and in which there is asymmetric information."* Furthermore, *"divergence of views within society, differences in information and the electoral advantage to the government from withholding information appear to be sufficiently common to explain why most government policy remains discretionary."*<sup>38</sup>

## 1.8 Concluding Remarks

The rules versus discretion debate in monetary policy has preoccupied economists and non-economists for at least 150 years. The arguments put forward by Kydland and Prescott in 1977 convincingly demonstrated for the first time that rules generate a better social outcome in comparison to discretion. The identification of the time-inconsistency problem of policy, used as the central argument in favour of rules, goes back to Nordhaus (1975) and his theory of political business cycles. Nordhaus arrived at the conclusion that *"a perfect democracy with retrospective evaluation of parties will make decisions biased against future generations"*<sup>39</sup>. In other words, politicians have the incentive to improve the economic situation prior to elections, regardless of the implications of such a policy for the future. Nordhaus demonstrated, on the basis of the process of social investment, the general validity of his findings whenever

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<sup>38</sup> Cukierman/Meltzer (1986, p. 387)

<sup>39</sup> Nordhaus (1975, p. 187)

decisions have to be made in democratic systems which involve inter-temporal choice<sup>40</sup>.

The occurrence of stagflation and the 'rational expectations revolution' called into question the established belief of an exploitable Phillips-curve and showed 'that rational voters would not be easily fooled by well-timed pre-electoral expansion, which had direct implications for the rules versus discretion debate<sup>41</sup>. This rational criticism was incorporated in various analyses and models, such as by Cukierman and Meltzer and by Canzoneri who introduced the issue of information asymmetry into the general debate. The findings showed that the implications of Nordhaus' analysis are still valid, although later studies demonstrated convincingly that voters are not myopic and naive, as earlier assumed. These analyses particularly stress and demonstrate the difficulties and problems arising from the enforcement of rules as a device to achieve credibility and accountability of monetary policy, under assumed information asymmetry. Although the findings by Cukierman and Meltzer, and Canzoneri do not explicitly suggest the establishment of an independent central bank as a solution to the time-inconsistency problem in such a way as Neumann<sup>42</sup> does, the conclusions drawn, however, point indirectly at central bank independence (CBI) as a possible alternative to eliminate the shortcomings of discretion and rules. The anti-inflationary record of monetary policy in Germany, which is subject to close examination in chapter four, demonstrates the advantages of having an independent central bank. The results of a study by Banaian et al. suggest that independent central banks have been less accommodative to outside pressures than their less autonomous counterparts, leading consequently to substantially lower inflation rates<sup>43</sup>.

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<sup>40</sup> Nordhaus (1975, p. 188)

<sup>41</sup> Alesina (1989)

<sup>42</sup> Neumann (1991, pp. 95-112)

<sup>43</sup> Banaian/Laney/Willett (1983, p. 13)

The central argument for CBI is that the establishment of an independent central bank, which is committed to price stability, solves the time-inconsistency problem, by replacing discretion with an accountable monetary arrangement, which creates credibility of monetary policy and generates a better social outcome. It is argued that *"once an inflation-conscious credibility has been established by a central bank, its occasional departure from noninflationary monetary policy may be overlooked as a factor in the formation of inflationary expectations"*<sup>44</sup>. With the setting up of an independent monetary authority the inflationary bias can be removed and price stability can be achieved in the long-run, with minimum real economic costs. Furthermore, an independent central bank which is committed to price stability combines the necessary flexibility, needed to react to unanticipated disturbances, with credibility, needed to provide a sufficient level of stability for the economy. An independent monetary authority seems to provide a better solution to the 'credibility problem' compared to the fully binding and rather rigid 'rules-solution' and the other alternative of complete discretion.

The past few years have witnessed a growing interest in the establishment of greater legal independence of central banks, which brought about considerable changes in central bank legislation. One of the most striking examples provides the Reserve Bank of New Zealand, whose legal status was fundamentally reformed by a new central bank statute, enacted in 1989. The Bank was transformed from a legally very strongly dependent central bank into one of the most independent. Many countries in Eastern Europe and Latin America are studying proposals with similar purpose. Furthermore, proposals have recently been made by an independent panel of economists to give the Bank of England a new mandate as an independent and accountable central bank. Another example is the statute of the European Central Bank, as embodied in Protocol No. 3 to the Maastricht Treaty, which is strongly

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<sup>44</sup> Banaian et. al. (1983, p. 13); Epstein (1992, p. 2) argues that *"central bank control over financial conditions depends more and more on their ability to affect market expectations, and less on their ability to affect the money supply."*

based upon the existing Bundesbank legislation and goes even beyond it. Moreover, the experiences with the European Monetary System show that a hard currency peg can provide a useful anchor for inflation expectations in countries which rely on discretion in the conduct of monetary policy, even if such an arrangement involves a significant change in the policy regime<sup>45</sup>. The low propensity to inflate and the international appreciation of the Deutschmark due to the anti-inflationary policy of the Bundesbank, enabled Germany to set the monetary standard for many years in Europe.

However, there are various counter arguments and general problems arising with the establishment of an independent central bank which shall be only mentioned briefly at this point. The argument that an independent central bank contradicts and challenges established and generally accepted democratic principles of liberal societies is very often put forward in this context<sup>46</sup>. Moreover, fundamental doubts have been raised regarding the value of an independent central bank. This is expressed in the concern that an independent monetary authority can have its own internal objectives and motivations which can conflict with its general tasks, namely to pursue anti-inflationary policy<sup>47</sup>. Alesina (1989) argues that the existence of an independent central bank may create co-ordination problems between monetary and fiscal policy. Another point which proves problematic is the difficulty to eliminate completely indirect or informal political pressure over central bankers, despite legally guaranteed independence.

Nevertheless, the arguments put forward in favour of an independent central bank as the 'monetary custodian' are very strong and convincing. As Cukierman argues "*the*

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<sup>45</sup> Driffill/Miller (1993)

<sup>46</sup> Alesina (1989); Castello-Branco/ Swinburne (1992); Epstein (1992, p. 2) states in this context that "*the expanded role of nondemocratic central banks seems certain to damage the liberal democratic structure of European and U.S. capitalism.*"

<sup>47</sup> A study on the bureaucratic behaviour of the Bundesbank by Vaubel shows that the members of the Central Bank Council mainly favour income, power, and prestige. (in: Dunkel/Jünemann, 1995)

*intellectual case of central bank independence rests on two pillars. One is theoretical and the other empirical. The theoretical argument is based on the view that policy-makers are subject to an inflationary bias.*" Whereas the empirical case *"rests on the observation that there is, cross-sectionally, a negative correlation between various proxies for CBI and inflation"*<sup>48</sup>. The latter empirical case for central bank independence is discussed in detail in the next chapter.

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<sup>48</sup> Cukierman (1994, pp. 1437-38)

## **CHAPTER II**



## Measures of Central Bank Independence - An Empirical Comparison

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### 2.1 Introduction

The first chapter provided a comprehensive overview about the game-theoretical content of the ongoing 'rules versus discretion' debate. This chapter now examines the empirical side of the argument, which Cukierman<sup>1</sup> calls 'the second pillar of the intellectual case of central bank independence', by reviewing and assessing different measures and indices of central bank independence.

Unlike the vast and well-developed literature on the theoretical foundations of the case of central bank independence, there are only a few studies which compare existing monetary policy regimes between a large number of countries in order to find empirical evidence which corroborates the theoretical case. Only recently has a considerable effort been made to prove the validity of the theoretical argument using sound empirical evidence. Although the empirical results suggest an inverse relation between the rate of inflation and legal independence in industrialised countries, the conclusions drawn from such material are less clear-cut than the theoretical literature suggests. A recent study by the International Monetary Fund<sup>2</sup> questions the reliability of conclusions drawn on the basis of empirical evidence. In many of these studies correlations are made between the indices of central bank independence and macroeconomic variables (inflation, growth), leaving aside external constraints such as exchange rate systems which can affect this relationship to some extent. Another

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<sup>1</sup> Cukierman (1994, p. 1437)

<sup>2</sup> Castello-Branco/Swinburne (1991)



aspect which should be taken into account concerns the expressiveness of the numerical values of the indices. These values are dependent on (i) criteria applied to determine the status of the central bank in relation to the government, (ii) the interpretation of the relevant statute in terms of the criteria applied; whether the statute meets the criterion; (iii) the method of aggregation of the collected data and the composition of the index<sup>3</sup>. The resulting index incorporates arbitrary and subjective features since there is no non-arbitrary way of choosing the criteria and there are unavoidable subjective elements in constructing indices of central bank independence. Another issue to be considered, as shown by Cukierman (1992), although of lesser significance for central banks in developed countries, is the possibility that the actual way of conducting monetary policy may deviate from the legal arrangements. Most of the empirical literature focuses exclusively on institutional features, disregarding behavioural, political, structural, and historical factors as well as the role of personalities, informal arrangements, etc. which shape significantly the legal form of the monetary arrangements as well as the actual conduct of monetary policy. Grilli et al. (1991) refer to these factors as behavioural indicators which are an important dimension of a monetary regime as they help to identify the actual monetary regime and its degree of independence from government directives. In 1992 Cukierman published a very comprehensive study in which he examined 72 industrialised and developing countries on grounds of their monetary arrangements and macroeconomic performance. In his paper Cukierman developed four measures of central bank independence which allow institutional as well as behavioural factors, reflecting the actual practices, to be taken into account. Three fundamental types of proxies of central bank independence have appeared so far in the literature (i) legal indices, derived from central bank constitutions, (ii) the actual turnover of central bank governors, and (iii) answers given by monetary policy makers of different countries in the form of a questionnaire on central bank practice.

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<sup>3</sup> Eijffinger/Schaling (1993, p. 50)

Before going into detailed description of the various indices found, it seems helpful in this context to briefly introduce deviations in the definition of the notion of central bank independence (CBI). In an essay, first published in 1962, Milton Friedman distinguishes between a *trivial* and a *more basic meaning* of the word 'independence' in the context of central banking. The notion of independence applied in a trivial sense is "*when within a central administrative hierarchy, the conduct of monetary policy is entrusted to a separate administrative organisation which is subordinate to the chief executive*". Whereas independence defined in a more basic sense is "*that a central bank should be an independent branch of government, co-ordinate with the legislative, executive, and judicial branches and with its actions subject to interpretation by the judiciary*"<sup>4</sup>. Friedman's definition implies that the monetary authority has a mandate to carry out a law passed by the government and its operations could only be interfered with by the government if this mandate is changed accordingly. His doubts concerning the political acceptability, economic desirability and efficiency of the latter will not be discussed at this point. Another definition is given by Wood et al. (1993, p. 10) who describe central bank independence as a situation where the "*government of the day has no formal means of influencing central bank decisions over monetary policy*". In current monetary policy, there are hardly any examples where the central bank has an explicit and clearly defined mandate for price stability<sup>5</sup>.

In order to give a more detailed description and deeper insight into the various elements introduced above, this chapter discusses and compares the internal structure of major indices of central bank independence and applies these indices to different countries with special focus on the monetary arrangements in the Bank of England and the German Bundesbank.

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<sup>4</sup> Friedman (1968, p. 178/179)

<sup>5</sup> The Federal Reserve Bank of New Zealand has the mandate, which is legally binding, to deliver 0-2 per cent inflation which is the most precise mandate for a central bank concerning price stability in operation today.

## 2.2 Bade and Parkin's Index of Central Bank Independence - A First Empirical Attempt<sup>6</sup>

Bade and Parkin's empirical study (1988) investigates the relationship between monetary regimes and the laws or statutes which define the way in which the conduct of monetary policy proceeds in these regimes. The paper examines the experience of twelve industrial countries (Australia, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, the United Kingdom, the United States, Sweden, and Switzerland), for the period from 1972 to 1986 under floating exchange rates.

In order to organise the data and to qualify them for comparison, Bade and Parkin (BP) viewed the central bank legislation of the twelve countries in terms of three main aspects; (i) the relationship between the central bank and the government in the formulation of monetary policy, (ii) procedures for appointing the board of the central bank, and (iii) the financial and budgetary relations between the two institutions. On the basis of the first two features, Bade and Parkin classified the central banks according to their degrees of policy independence. The third feature was applied to identify the degree of financial independence from the government. Three criteria were used to determine the degree of policy independence:

- (1) Is the central bank the final policy authority?
- (2) Is there no government official (with or without voting power) on the bank board?
- (3) Are more than half of the board members not appointed by the government?

Criterion three requires that only  $\geq 11/21$  of the members of the central bank board are not to be appointed by the government. As threshold for meeting criterion three serves the composition of the Central Bank Council of the Bundesbank<sup>7</sup>. Bade and Parkin themselves found that in all cases where the government is in charge of

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<sup>6</sup> An earlier study was published in 1979 by Fair, who compared the monetary arrangements in 16 countries without constructing explicit indices, indicating the degree of independence.

<sup>7</sup> Eijffinger/Schaling (1993, p. 62)

# Measures of Central Bank Independence

monetary policy formulation, it also appoints over 12 of the 14 policy board members. For each criterion met, the central bank obtains one asterisk. The degree of independence increases the more criteria the central bank meets.

According to the number of criteria, eight potential policy types can be distinguished, from which only the following four in reality exist.

Central Bank Laws: Policy Types <sup>8</sup>					
Bank is final policy authority	No government official on bank board	Some board appointments independent of government	Potential bank type	Central bank type does exist	Policy type
-	-	-	(e)	yes	1
-	*	-	(f)	yes	2
*	*	-	(g)	yes	3
*	*	*	(h)	yes	4

TABLE 2.1

Table 2.2 contains the information for each sample country which are needed to determine the policy type of the central bank.

Policy Types <sup>9</sup>						
Country	Final Authority	Government Officials on Board	Proportion of Policy Board Appointed by	Number of Members	Term of Members	Term of Governor/Chairman
(see note below)	(a)	(b)	(c)		(d)	(e)
Australia	g	1	1	10	5	7
Belgium	g	0	1	14-17	6	5
Canada	b(1967-) g(1967+)	0	12/14	14	3	7
France	g	0	12/13	13	6	u
Italy	g	0	1	1	3	3
Netherlands	g	0	1	5-7	7	7
Sweden	g	0	1	7	3	3
United Kingdom	g	0	1	18	4	5
Japan	b	0	1	7	4	4
United States	b	0	1	7	14(N)	4
Germany	b	0	10/12	21	8	8
Switzerland	b	0	1/5	10	4	

TABLE 2.2

<sup>8</sup> Eijffinger/Schaling (1993, p. 53)

<sup>9</sup> Bade/Parkin (1988, table 1)

## Measures of Central Bank Independence

Notes: (a) b = bank, g = government  
 (b) number of ministers (or their representatives) who sit on the bank board  
 (c) number represents proportion of members appointed directly /indirectly by the government  
 (d) years (N = not eligible for re-election) (e) u = unlimited term

The degree of financial independence is determined by the following three features; (i) budgetary independence, (ii) board member salaries determined by the government/bank, (iii) profit allocation determined by bank/government/statute. The following table shows the financial type of the central bank for each sample country.

<b>Central Bank Laws: Financial Type<sup>10</sup></b>			
<b>Country</b>	<b>Budgetary Independence</b>	<b>Board Members' Salaries Determined by</b>	<b>Profit Allocation Determined by</b>
Japan	no	g	g
Australia	yes	g	g
France	yes	g	g
Sweden	yes	g	g
United States	yes	g	g
Belgium	yes	b	s
Canada	yes	b	s
Germany	yes	b	s
Italy	yes	b	s
Netherlands	yes	b	s
Switzerland	yes	b	s
United Kingdom	yes	b	b

**TABLE 2.3**

[b = bank, g = government, s = statute]

Bade and Parkin assigned the same weight to each attribute and simply added up the attributes possessed by the central bank to determine its degree of independence. The central banks are ranked from 1 (least independent) to 4 (most independent). The results of Bade and Parkin's analysis are shown in table 2.4, where the central banks are arranged according to their degree financial and policy independence.

<sup>10</sup> Bade/Parkin (1988, table 2)

# Measures of Central Bank Independence

Central Bank Types <sup>11</sup>				
FINANCIAL TYPE	1	2	3	4
POLICY TYPE				
1	Australia			
2		France Sweden	Belgium Canada Italy Netherlands	United Kingdom
3	Japan	United States		
4		Germany Switzerland		

**TABLE 2.4**

<u>Financial Types:</u>	1	government approves budget, determines board members' salaries and profit allocation		
	2	bank determines budget allocation (and reports to government); government determines board members' salaries and profit allocation		
	3	bank determines budget and board members' salaries; profit allocation determined by statute		
	4	bank determines budget, board members' salaries and profit allocation		
<u>Policy Types:</u>	1	government is final policy authority, has official on bank board, and appoints all board members		
	2	like 1, but no government official on bank board		
	3	bank is final policy authority but all board appointments made by government		
	4	bank is final policy authority and some board appointments made independently of government		

Bade and Parkin continue their analysis with an investigation of the relationship between central bank types and monetary policy. The focus is on three aspects of monetary policy, (i) inflationary/deflationary stance, (ii) variability of inflation, and (iii) the variable to which it reacts. The key feature which characterises post-war history of the sample countries is fixed exchange rates. Since a fixed exchange rate system ties countries closely together and leaves monetary policy with the task of determining the balance of payments, Bade and Parkin have only a restricted amount of data available<sup>12</sup> to examine the effect of central bank laws on inflation. The inflationary stance is measured by the average rate of change of consumer prices.

<sup>11</sup> Bade/Parkin (1988, table 3)

<sup>12</sup> The period of flexible exchange rates began in 1972.



Concerning policy variability, the elements which are of greatest interest are the variability of inflation, output, and employment. Policy variability, measured in this way, would involve the examination of both nominal and real variability. This on the other hand would lead to conflicting rankings, due to cross-country differences in slopes of short-run trade-offs between output and inflation which would go beyond the scope of Bade and Parkin's paper.

Alternatively, Bade and Parkin look directly at variables under the direct influence of central banks, such as interest rates, by presupposing that stable interest rates could be identified with stable policy. This strategy fails since nominal interest rates ought to vary, as one of the instruments to control inflation. Since variations in equilibrium interest rates are caused by various factors, one would have to inactivate all these factors in order to ensure that only the interest rate causes variability and can therefore serve as a real indicator of the variability of monetary policy. Even though interest rates are instruments of monetary policy, they are employed to achieve certain growth rates of monetary aggregates and are therefore subject to manipulation. Interest rates can even serve as intermediate targets to achieve the predicted rate of inflation.

For the above reasons, interest rates do not seem appropriate measures of the variability of policy. Bade and Parkin take the view that "*there is no inherent inconsistency in using the variability of inflation as the appropriate measure of the variability of monetary policy*"<sup>13</sup>. The following table<sup>14</sup> contains the average inflation and its variability for each sample country, grouped according to the central bank policy type.

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<sup>13</sup> Bade/Parkin (1988, p. 19)

<sup>14</sup> Bade/Parkin (1988, table 5)

**Average Inflation and its Variability, Grouped According to Central Bank Type,  
for the Flexible Exchange Rate Period 1972-1986**

Country	Inflation Rate			Policy Variability	
	Type	Percent	Rank	Standard Deviation	Rank
Australia	1	9.9	(10)	3.2	(7)
Belgium	2	7.1	(6)	3.0	(5)
Canada		7.9	(7)	2.8	(3)
France		9.5	(9)	3.2	(7)
Italy		14.0	(12)	4.6	(10)
Netherlands		5.8	(3)	3.0	(5)
Sweden		8.9	(8)	2.5	(2)
United Kingdom		11.2	(11)	6.0	(11)
Japan	3	6.6	(4)	6.1	(12)
United States		6.9	(5)	3.5	(9)
Germany	4	4.3	(1)	2.0	(1)
Switzerland		4.4	(2)	2.8	(3)

TABLE 2.5

In the last part of their paper, Bade and Parkin examine the relationship between central bank independence and monetary policy. According to Bade and Parkin, there are no apparent differences in inflation rates between the first two categories of central banks, which differ only from each other as in the first category a government official is present on the central bank board. The third and fourth group are classified as independent central banks with Japan and the United States as intermediate central banks. The analysis shows that the two most independent central banks, those of Germany and Switzerland, have delivered a lower inflation than the intermediate banks of Japan and the US. However, the data in the table does not demonstrate the existence of an association between the policy type and the measure of policy variability. Bade and Parkin estimated first order autoregressions for inflation with the inclusion of a dummy variable for the German and the Swiss central bank type to give formal statistical content to the broad evidence obtained in the more general



analysis. They conclude from the statistical data that central bank laws only seem to influence inflation in the case of the extremely independent central bank type prevailing in Germany and Switzerland and identify as the key distinguishing characteristic the fact that the appointments of board members are not entirely controlled by the government in these two countries. Bade and Parkin state in their concluding remarks that the results *"do seem to confirm the perhaps only vaguely expressed idea that central banks are inherently more conservative and more disinflationary than the governments which establish them and which they serve"*<sup>15</sup>.

Besides the arbitrariness and subjectiveness which is inherent in this kind of analysis, the Bade and Parkin index of central bank independence incorporates a rather significant shortcoming which is the equal weighting of the attributes, since some institutional features of a monetary regime, such as whether or not the central bank is the final policy authority, are more important for the determination of the degree of central bank independence than others.

### 2.3 Alesina's Empirical Analysis of Central Bank Independence

Alesina based his empirical analysis of central bank independence upon the pioneering study by Bade and Parkin. He used the BP proxy of CBI and integrated it into the political and business cycle theory to demonstrate that there is a link between economic outcomes and political and institutional stability. Alesina shows that there is a correlation between the index of political instability and the index of CBI. Furthermore, Alesina used additional information about monetary arrangements in another five countries (New Zealand, Spain, Denmark, Norway, and Finland), provided by Fair (1979) and Masciandaro and Tabellini (1988), and extends the BP

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<sup>15</sup> Bade/Parkin (1988, p. 26)

sample to a total number of seventeen countries to be examined. Although Alesina employs the BP index of policy independence and the numerical values of his index are identical to BP's classification, the value differs in the case of Italy. Alesina identifies the degree of central bank independence for Italy as 1.5 instead of 2 (according to Bade/Parkin). Alesina gives as reason for its deviation: "*Bade and Parkin's classifications disregard institutional changes in the period considered. The Italian Central Bank obtained more economic independence in 1982 [...]. Given this change we classified Italy as 1.5 rather than 2, as in Bade-Parkin<sup>16</sup>*". Alesina criticises BP's disregard for institutional changes and identifies these changes with a change in the degree of economic independence. The argument for the case of Italy is based upon the divorce of the Banca d'Italia from the Treasury in 1981, recognised in a study by Tabellini in 1988. The 'divorzio' freed the Italian Central Bank from the obligation to absorb all excess supply of short-term treasury bills which had a disciplinary effect on government spending since it limited the scope for financing government deficits via the printing press, which resulted in an increase in the independence of the Banca d'Italia. The results are summarised in table 2.6 in direct comparison with Bade and Parkin's findings.

If one looks closer at the case of Italy it is striking that, although the divorce was taken into account by Alesina, he downgraded the Banca d'Italia in terms of independence from 2 (BP index) to 1.5. The construction of the index (numerical values from 1 to 4) follows the BP classification. The highest number of obtainable asterisks is three which stands for the highest degree of independence (numerical value of the index = 4). As Alesina assigns the numerical value of 1.5 to the Italian central bank, the Banca d'Italia only qualifies for the category of the least independent central banks.

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<sup>16</sup> Alesina (1988, p. 42)

## Measures of Central Bank Independence

<b>Inflation and Central Bank Independence (1973-1986)<sup>17</sup></b>			
<b>Country</b>	<b>Average Inflation</b>	<b>Alesina index of central bank independence</b>	<b>Bade-Parkin index of central bank independence</b>
Italy	13.7	1.5	2
UK	10.7	2	2
Australia	9.7	1	1
France	9.2	2	2
Sweden	8.7	2	2
Canada	7.8	2	2
Belgium	6.9	2	2
US	6.9	3	3
Japan	6.4	3	3
Netherlands	5.5	2	2
Switzerland	4.1	4	4
Germany	4.1	4	4

TABLE 2.6

By taking the divorce of the Italian central bank from the Treasury into account, Alesina changed the numerical value of the index of CBI and altered the degree of independence of the Banca d'Italia. It must therefore follow that Alesina introduced a fourth criterion, say A4, into his analysis to determine the degree of independence of a central bank. The criterion (A4) is whether the central bank is free from the obligation to absorb excess supply of short-term treasury bills? Accordingly, Alesina's proxy of central bank independence consists of four separate criteria, B/P criteria 1-3 and A4, which yields eight potential policy types. In order to maintain the consistency of the index, criterion A4 has to be applied to all the central banks of the sample.

Table 2.7 shows, according to Alesina, five different central bank types which can be found among the seventeen sample countries. From the table it can easily be seen that Alesina did not follow Bade and Parkin's way of weighting and summing up the applied attributes. A closer look at the outcome of the analysis suggests that all the

<sup>17</sup> Alesina (1989, p. 81); Eijffinger/Schaling (1993, p. 57)

central banks of the sample, except Banca d'Italia, have the obligation to finance the government's deficit spending. This is certainly not the case and the result of a closer examination of Alesina's proxy of CBI is 'reductio ad absurdum'<sup>18</sup>. The index is internally inconsistent since not all relevant criteria were applied to each central bank of the sample and therefore does not allow a comparison. Alesina failed to construct a consistent index of central bank independence.

Alesina Types and Central Bank Laws <sup>19</sup>				
B/P policy type	Criterion A4 met?	potential central bank type	Central bank type does exist?	Alesina type
1	*	(a)	no	-
3	*	(b)	no	-
4	*	(c)	no	-
1	-	(d)	yes	1
2	*	(e)	yes	1.5
2	-	(f)	yes	2
3	-	(g)	yes	3
4	-	(h)	yes	4

TABLE 2.7

## 2.4 Grilli, Masciandaro, Tabellini and the Index of Political and Economic Independence

Most of the empirical literature on central bank independence compares monetary regimes in terms of political independence. The economic dimension has been investigated only recently. Grilli, Masciandaro, and Tabellini (GMT) determined the degree of political and economic independence of the central bank for eighteen countries. Political independence is defined as "*the capacity to choose the final goal*

<sup>18</sup> Eijffinger/Schaling (1993, p. 59)

<sup>19</sup> Eijffinger/Schaling (1993, p. 58)

*of monetary policy*", whereas economic independence can be defined in terms of "*the capacity to choose the instruments with which to pursue these goals*"<sup>20</sup>. GMT identify the undermentioned three features which primarily determine the capacity of the monetary authority to choose the final goals of monetary policy.

- (i) the procedure for appointing the members of the central bank governing bodies
- (ii) the relationship between these bodies and the government
- (iii) the formal responsibilities of the central bank

The index of policy independence is constructed on the basis of these features. In order to determine the degree of political independence, GMT introduced the following eight criteria<sup>21</sup> into the analysis and investigated the monetary regimes of the sample countries in terms of these criteria.

- (1) governor not appointed by government
- (2) governor appointed for > 5 years
- (3) all the board not appointed by government
- (4) board appointed for > 5 years
- (5) no mandatory participation of government representative in the board
- (6) no government approval of monetary policy formulation is required
- (7) statutory requirements that central bank pursues monetary stability amongst its goals
- (8) legal provisions that strengthen the central bank's position in conflicts

Table 2.8 contains the results obtained by applying the criteria of political independence to the eighteen sample countries. GMT classified the central banks of the Netherlands and Germany as the most independent ones with a numerical value of 6, equivalent to the number of asterisks obtained. The European Central Bank (ECB) acquired, according to its statute, the same numerical value as the Bundesbank for political independence<sup>22</sup>. In fact, the statute of the ECB is closely drafted along the line of the Bundesbank statute. According to the construction of the index of political independence, Switzerland, the US, Italy, and Canada enjoy a high degree of

<sup>20</sup> Grilli et al. (1991, p. 366)

<sup>21</sup> Grilli et al. (1991, p. 368)

<sup>22</sup> The empirical data for political and economic independence of the ECB are taken from a study carried out by Alesina and Grilli (1992).

## Measures of Central Bank Independence

independence. GMT chose to weight all criteria equally and to sum up the number of asterisks obtained by each sample country. The central banks are ranked from 1 (least independent) to 6 (most independent). The GMT index is qualitatively and quantitatively richer compared to the Bade/Parkin, since it takes more criteria into account which convey more information and therefore allows a more precise evaluation of each monetary regime.

<b>Political Independence of Central Banks<sup>23</sup></b>									
	<b>Appointments</b>				<b>Relationship with Government</b>		<b>Constitution</b>		<b>Index of Political Independence</b>
<b>Countries</b>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Australia		*					*	*	3
Austria							*	*	3
Belgium				*					1
Canada	*	*					*	*	4
Denmark		*				*	*		3
France		*		*					2
Germany		*		*	*	*	*	*	6
Greece			*					*	2
Ireland		*				*	*		3
Italy	*	*	*		*				4
Japan							*		1
Netherlands		*		*	*	*	*	*	6
New Zealand									0
Portugal					*				1
Spain				*	*				2
Switzerland		*			*	*	*	*	5
UK					*				1
US				*	*	*	*	*	5
ECB		*		*	*	*	*	*	6

TABLE 2.8

In the second part of their analysis, GMT shed light on the aspect of the economic independence of monetary policy by constructing an index of economic independence, which incorporates the following features:

<sup>23</sup> Grilli et al. (1991, p. 368)

## Measures of Central Bank Independence

- (i) monetary arrangements between the public sector and the central bank determining the extent of the monetary financing of budget deficits
- (ii) the nature of monetary instruments under the control of the central bank

The two features are subdivided into the following criteria:

- (i)
  - (1) direct credit facilities: not automatic
  - (2) direct credit facilities: market interest rate
  - (3) direct credit facilities: temporary
  - (4) direct credit facilities: limited amount
  - (5) central bank does not participate in primary market for public debt
- (ii)
  - (6) discount rate set by central bank
  - (7) banking supervision not entrusted to the central bank (\*\*) or not entrusted to the central bank alone (\*)

Table 2.9 contains the abovelisted criteria, applied to the sample countries.

<b>Economic Independence of Central Banks<sup>24</sup></b>									
	<b>Monetary Financing of Budget Deficit</b>					<b>Monetary Instruments</b>		<b>Index of Economic Independence</b>	
<b>Countries</b>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Australia	*	*	*	*	*	*		6	
Austria			*	*	*	*	**	6	
Belgium		*		*	*	*	**	6	
Canada	*	*	*	*		*	**	7	
Denmark		*			*	*	**	5	
France				*	*	*	**	5	
Germany	*	*	*	*	*	*	*	7	
Greece				*		*		2	
Ireland		*	*	*		*		4	
Italy				*				1	
Japan	*		*		*	*	*	5	
Netherlands			*	*	*	*		4	
New Zealand			*	*		*		3	
Portugal				*		*		2	
Spain			*	*			*	3	
Switzerland		*	*	*	*	*	**	7	
UK	*	*	*	*		*		5	
US	*	*	*	*	*	*	*	7	
	(1)	(2)	(3)	(4)	(5)	(6)	(7) <sup>a</sup>	(8) <sup>b</sup>	(9)
ECB	*	*	*	*	*	*	*	*	8

**TABLE 2.9**

<sup>a</sup> no portfolio constraints in place since 1980 } Alesina/Grilli (1992, p. 72) used the data and  
<sup>b</sup> no bank loan ceilings in place since 1980 } systematic of Grilli et al. (1991)

<sup>24</sup> Grilli et al. (1991, p. 369)



In terms of the first set of criteria, economic independence is greater the more of the criteria are met by the central bank. The same applies to the second set, the monetary instruments. As before, to determine the overall degree of economic independence of the central banks in the sample countries, the attributes are weighted equally and simply summed up. The monetary regimes in Canada, the US, Switzerland, and Germany enjoy the highest degree of independence, followed suit by Belgium, Austria, and Australia. The ECB, however, has the highest degree of economic independence overall (8 asterisks) and displays once again striking similarities with the Bundesbank. The ECB is not allowed to grant credit lines to Community or national public institutions, not even on a temporary basis. The result of the analysis carried out shows that political and economic independence is not always positively correlated. The Nederlandsche Bank is a good example to demonstrate this negative correlation, with a numerical value of 6 for the index of policy independence and a score of 4 in terms of economic independence. The results of the analysis are illustrated in figure 2.1.

According to GMT, four groups of countries are identifiable. The set of countries in the upper-right section have the most independent central banks, both in political and in economic terms. Those countries in the lower-left part of the diagram, Greece, New Zealand<sup>25</sup>, Portugal, and Spain, have highly dependent central banks. The group of countries in the lower-right part of the diagram enjoys a comparably high degree of economic independence which nevertheless can be combined with unsustainable debt paths<sup>26</sup>.

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<sup>25</sup> The recent reforms in the Federal Reserve of New Zealand changed its status drastically and increased the degree of independence. It now belongs to the group of the most independent central banks.

<sup>26</sup> Belgium: index of economic independence = 6, but public debt in GNP of more than 140% (The European, 1-7 July 1994)

## Measures of Central Bank Independence

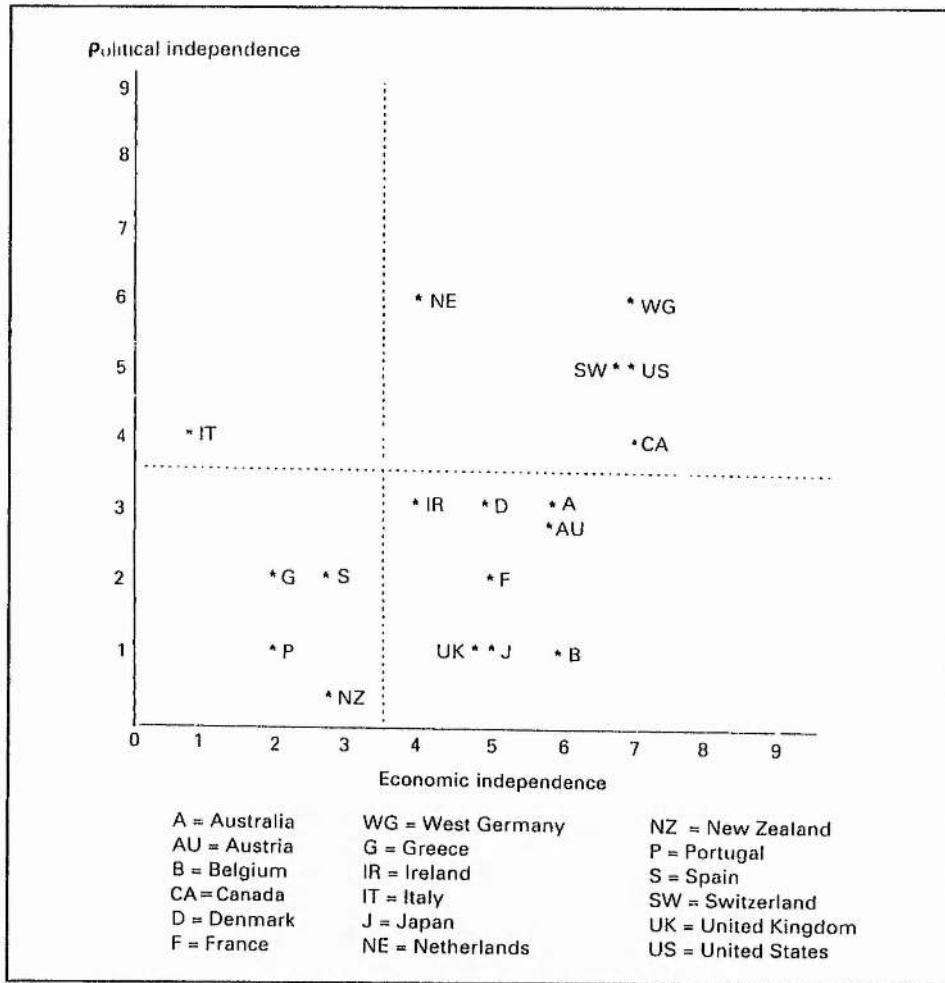


FIGURE 2.1: Political and Economic Independence of Central Banks

GMT conclude their analysis with an investigation of whether there is a relation between CBI and inflationary performance. The results of the regressions confirm the findings by Alesina (1989) and Bade/Parkin (1982), that a more independent central bank is on average associated with lower inflation without worsening the macroeconomic outcome. GMT state, therefore, that *“having an independent central bank is almost like having a free lunch; there are benefits but no apparent costs in terms of macroeconomic performance”*<sup>27</sup>.

<sup>27</sup> Grilli et al. (1991, p. 375)

The monetary arrangements of the Bundesbank and the Bank of England are discussed in greater detail in the following paragraphs on basis of the GMT criteria. The appointment procedure for membership in the central bank governing bodies is the first subject of closer examination. By legal definition, embodied in *article 5 of the Bundesbank Law (Bundesbankgesetz [BBkG])*, the Bank consists of three bodies, "the Central Bank Council (*Zentralbankrat*), the Directorate (*Direktorium*), and the Boards of the nine Land Central Banks (*Landeszentralbanken*)". The Central Bank Council (CBC) is the supreme body of the Bundesbank (*article 6 BBkG*) and consists of the President, the Deputy President, up to six members of the Directorate, and the nine Presidents of the Land Central Banks. The President, the Deputy President, and the members of the Directorate are appointed by the Bundespräsident (speaker of the Bundestag) on the Federal Government's recommendation. The Directorate consists of the President and the Deputy President of the Bundesbank and up to six members. All members are nominated by the Federal Government and appointed by the Bundespräsident. Appointees must have "*special professional qualifications*" (*article 7, par. 2 BBkG*) which is a rather vague requirement. One characteristic feature of the Bundesbank is its relatively low personnel turnover which can be attributed to the appointment of the President, the Deputy President, and the other Directorate members for a tenure of 8 years, embodied in *article 7, par. 3 BBkG*.

The constitutional arrangements, regarding the Bank's pursuit of price stability among its policy goals, and the legal provisions, which strengthen the Bank's position in the case of conflict with the government, will now be investigated. The relationship to the government is regulated in the *articles 12 and 13* of the Bundesbank Law. *Article 13* gives the Federal Government the right to attend sessions of the Central Bank Council. On a motion by the Federal Government, the passing of a resolution of the CBC can be delayed up to two weeks. The Federal Government does not have a vote, but it has the right as well as the obligation to consult with and advise the central bank

on matters of considerable importance for the economy as a whole and the monetary policy of the Bundesbank. The Bundesbank has the obligation "to support the general economic policy of the Federal Government" under maintenance of its tasks (*article 12, BBkG*). On the other hand, *article 12* guarantees the Bundesbank's independence from governmental directives which eliminates the possibility of political pressure being exerted on monetary decisions. The primary task of the Bundesbank is the safeguarding of the stability of the currency, embodied in *article 3 BBkG*. The Bundesbank obtained only one asterisks in the set of criteria concerning the appointment procedure, but met all the other criteria concerning its relationship to the government and the constitution. In the political as well as in the economic dimension of CBI, the Bundesbank scored the highest overall number of asterisks.

In contrast to the Bundesbank, Great Britain's monetary custodian, the Bank of England, performs poorly in terms of political independence obtaining only one asterisk for criterion five, no mandatory participation of a government representative in the board. The supreme authority of the Bank of England is the Court of Directors, made up of the Governor, the Deputy Governor, and sixteen Directors. The directors represent various sectors of society. Four of the directors are appointed full-time executive directors, whereas the other twelve are part-time external directors, who represent the banking sector, industry, etc.. All members of the Court of Directors are appointed by Her Majesty (*article 2, par. 2 Bank of England Act 1946*) on the Prime Minister's recommendation. The term of office for the Governor and the Deputy Governor is five years, whereas the Directors are appointed for a tenure of four years. Monetary policy in the United Kingdom is regarded as a component of economic policy and is therefore determined by the government, with the Bank of England as its monetary advisor. The Treasury is entitled to give directions to the Bank of England, *article 4, Bank of England Act*. It is stated in a memorandum in 1980 by the Bank that "economic policy is the responsibility of the Government and is determined by

*Ministers. Policy decisions are, however, the end product of the assimilation and discussion of studies, forecasts, advice and proposals available to Ministers from a wide range of sources, in which processes the Bank of England has a role to play which can be distinguished from that of Government departments*"<sup>28</sup>. Since the government determines monetary policy, the fact that there is no government official in the Court of Directors loses its meaning. The Bank of England has practically no policy independence.

The GMT index of economic independence will now be examined for the same two cases. The Bundesbank acquired the highest obtainable number of asterisks in this category and stands, therefore, again for the greatest degree of independence. The constitution of the Bundesbank does not allow a monetising of budget deficits, (*article 3 BBkG*). Although *article 12 BBkG* obliges the Bundesbank to support the general economic policy of the government, it only ought to do so if this does not jeopardise its primary task of maintaining price stability. *Article 20* regulates the transactions between the Bundesbank and the public administration and stipulates the limit for short-term loans from the Bundesbank to public bodies. However, the Bundesbank's substantial annual profits accrue to the Treasury. This source of income is already anticipated by the Treasury in the annual budget planning which puts pressure on the Bundesbank to distribute its profits, although this might conflict with its prime objective of price stability.<sup>29</sup> For the monetary management, the Bundesbank has the discount rate and Lombard rate policy, the open-market policy, and the minimum-reserve policy at its disposal. The Bundesbank sets the interest and discount rates, (*article 15 BBkG*). The supervision of the banking sector is fully entrusted to an independent authority, the Federal Credit Regulatory Agency (*Bundesaufsichtsamt für das Kreditwesen*). The Federal Credit Regulatory Agency (FCRA) is an autonomous body within the Ministry of Economics which exercises

<sup>28</sup> Memorandum by the Bank of England, 1980, pp. 177-80 (in particular paragraph 14)

<sup>29</sup> Weber (1991, p. 382) and *article 27 BBkG*

responsibility for the whole German banking sector. The FCRA is obliged to co-operate with the Bundesbank (*article 7, par. 1 Credit Law*), especially in cases of serious banking mismanagement which have significant consequences for the economic sphere.

According to the GMT index of economic independence, the Bank of England, with an overall score of 5 asterisks, ranks among the most economically independent central banks. The Banking Act of 1979 formulated the responsibilities of the Bank of England. Its major task is the supervision of the banking system, (*article 1 Banking Act 1979*). Although the Bank of England does not provide credit facilities to the government, it does participate in the primary market as a buyer of government securities. The relation between the index of economic independence and the index of policy independence in the case of the Bank of England provides a striking example of a negative correlation between these two categories of independence, and stresses the importance of such a division in providing a more truthful picture of the degree of overall legal independence of a central bank. Nevertheless, it seems problematic to assign an equal weight to the attributes because it can give rise to misleading conclusions. The highest overall number of asterisks obtained for policy independence is six, although the highest degree of independence, according to the structure of the policy index, is eight. Attributes six, no government approval of monetary policy formulation is required, and seven, statutory requirement that central bank pursues monetary stability among its goals, seem crucial for the determination of the degree of independence of a central bank. If the appointment procedure of the central bank board, in particular of the governor, is made independent from the government this is certainly of relevance in determining the degree of independence, but loses some of its significance as an attribute if the government's approval of monetary policy formulation is required.



If one compares the GMT index with the BP index it becomes apparent that the GMT criteria 5 and 6 are identical to Bade and Parkin's criteria 2 and 1, whereas GMT's criterion 3 differs from BP's criterion 3. The aggregation procedures in both analyses are identical and differences in the numerical values are caused by differences in the interpretation of the central bank statutes (interpretation effect) and a difference in the formulation of attribute 3 (criterion effect). However, only the criterion effect will be of concern at this point. Table 2.10 contrasts the results obtained by GMT and BP concerning the criteria 3, 5, and 6.

Grilli-Masciandaro-Tabellini versus Bade-Parkin <sup>30</sup>					
Country	GMT Policy Type	BP Policy Type	Interpretation Effect	Criterion Effect	Difference
Australia	1	1			
Belgium	1	2	-1		-1
Canada	1	2	-1		-1
France	1	2	-1		-1
Germany	3	4		-1	-1
Italy	3	2		+1	+1
Japan	1	3	-2		-2
Netherlands	3	2	+1		+1
Switzerland	3	4		-1	-1
UK	2	2			
US	3	3			
Sweden	-	2			

TABLE 2.10

Criterion three, in both indices, concerns the appointment of members of the central bank board. The difference between BP's and GMT's formulation of attribute 3 is that BP require a *simple majority*<sup>31</sup> of board members not to be appointed by the government, while GMT require *all* board members not to be appointed by the government. GMT's formulation of criterion 3 is stricter, which leads to a change in the ranking of the Bundesbank, the Schweizerische Nationalbank, and the Banca d'Italia. The latter is upgraded (+1), whereas the Bundesbank and the Schweizerische

<sup>30</sup> Eijffinger/Schaling (1993, p. 63)

<sup>31</sup> Eleven out of twenty board members not to be appointed by the government, as the threshold serves the composition of the Central Bank Council of the Bundesbank. Eijffinger/Schaling (1993, p. 63)



Nationalbank are downgraded (-1). Because these two banks do not meet the strict version of GMT's criterion 3, they become intermediate banks (index = 3), which classifies both central banks as equal to the Federal Reserve in terms of political independence. Considering that the Bundesbank has the legal obligation to maintain price stability, contrary to the Federal Reserve, it does not seem justified that both banks represent the same category. The Banca d'Italia is the only central bank to meet GMT's criterion 3 and acquires with the additional asterisk obtained by GMT standards the same status as the Bundesbank. By introducing a very strict requirement concerning the appointment of the central bank board, GMT's classification creates bias to the ranking of the central banks of Italy, Germany, and Switzerland.

The next index to be discussed is the Eijffinger-Schaling index which avoids parts of earlier criticism by weighting the criteria differently.

## 2.5 The Eijffinger/Schaling Index of Policy Independence

In 1993 Eijffinger and Schaling published a comparative analysis of some influential empirical studies on central bank independence and concluded their investigations with the composition of a new index of policy independence. Eijffinger and Schaling (ES) follow the GMT definition of policy independence as the '*capacity of the central bank to choose the final goal of monetary policy*'. They identify the following features as the major determinants of this capacity:

- (i) the procedures for appointing the board of the central bank,
- (ii) the relationship between central banks and government in the formulation of monetary policy,
- (iii) formal responsibilities (policy goals) of the central bank with respect to monetary policy.

These features are used to construct the Eijffinger/Schaling index of policy independence. The degree is determined using three criteria:

## Measures of Central Bank Independence

- (1) Does the central bank have the final policy authority (b); does it share this authority with the government (b/g), or is monetary policy completely entrusted to the government (g)?
- (2) Is there no government official (with or without voting power) on the bank board?
- (3) Are more than half of the board appointments made independent of the government?<sup>32</sup>

From the twelve resulting policy types only five in reality exist which are shown in table 2.11.

<b>Eijffinger/Schaling Policy Types<sup>33</sup></b>				
<b>Bank is final policy authority</b>	<b>No government official on bank board</b>	<b>Some board appointments independent of government</b>	<b>Potential central bank type</b>	<b>Policy type</b>
-(g)	-	-	(h)	1
-(g)	*	-	(i)	2
*(b/g)	*	-	(j)	3
** (b)	*	-	(k)	4
** (b)	*	*	(l)	5

TABLE 2.11

The first four central bank types resemble the BP types (a)-(d). Contrary to BP and GMT, Eijffinger and Schaling weigh the attributes differently. A country acquires two asterisks if policy making is exclusively entrusted to its central bank. If it shares monetary responsibility with the government, the central bank obtains only one asterisks and it receives no asterisks if the government is the sole final policy authority. The resulting index is asymmetrical because the attributes are not weighted equally. The GMT and the ES index of policy independence is composed of three major aspects

- (i) the relationship between the central bank and the government,
- (ii) appointment procedure of the board members, and
- (iii) the formal responsibilities of the central bank.

<sup>32</sup> Eijffinger/Schaling (1993, p. 64)

<sup>33</sup> Eijffinger/Schaling (1993, p. 65)

GMT weight these features symmetrically and assess them separately. By doing so, they allow a trade-off between feature (i) and (iii), the capacity to pursue a monetary policy goal and the content of such a goal. Eijffinger and Schaling demonstrate this trade-off by using the example of the Bank of Australia, which has the provision of pursuing monetary stability among its goals but is at the same time subservient in status to the government. The GMT procedure implies that a central bank which is subservient yet has the provisions for monetary stability is as autonomous as an independent central bank without these provisions<sup>34</sup>. Eijffinger and Schaling avoid the trade-off by assessing feature (i), who is the final policy authority, in conjunction with feature (iii), the goals of monetary policy.

Eijffinger and Schaling's findings are shown in table 2.12 with the five existing central bank types ranked from 1 (least independent) to 5 (most independent).

<b>Eijffinger-Schaling Index of Policy Independence Versus Bade-Parkin</b>				
<b>Country</b>	<b>ES policy type</b>	<b>BP policy type</b>	<b>Interpretation effect</b>	<b>Criterion effect</b>
Australia	1	1	0	0
Belgium	3	2	+1	0
Canada	1	2	-1	0
France	2	2	0	0
Germany	5	4	0	+1
Italy	2	2	0	0
Japan	3	3	-1	+1
Netherlands	4	2	+2	0
Switzerland	5	4	0	+1
UK	2	2	0	0
US	3	3	-1	+1
Sweden	2	2	0	0

**TABLE 2.12**

The differences in the numerical values between the ES and the BP policy index are interpretation and criterion effects. The interpretation effects are caused by different

<sup>34</sup> Eijffinger/Schaling (1993, p. 66)

interpretations of the central bank statutes. The criterion effect occurs because of ES's asymmetrical weighting of the attributes and the trade-off in BP's index between the criteria. Nevertheless, the ranking of the Bundesbank and the Bank of England does not change. The Bundesbank is classified by both indices as most independent, whereas the Bank of England ranks among the least independent central banks.

Eijffinger and Schaling made a valuable contribution to the empirical literature on central bank independence by constructing a new index of policy independence, based on an asymmetrical weighting of the attributes, and also by delivering a critical assessment of the existing indices of CBI.

### **2.6 A Broader Empirical Approach to CBI: Indices of Legal and Actual Independence**

A recent and very comprehensive study on central bank independence, comprising 72 industrialised and developing countries, was produced by Cukierman in 1992. He employs four types of indices of CBI and investigates their relation to the inflationary outcomes in the sample countries. The novelty in Cukierman's analysis is the attempt to introduce indicators of actual independence in the empirical literature in order to give a deeper and more comprehensive insight into existing monetary regimes. The basic difficulty of measuring central bank independence lies in the multitude of factors involved for example, legal factors, most important in industrial countries, and cultural and personal factors, which determine the degree of independence, and are in their nature hard to quantify in numerical terms.

The four indices applied in Cukierman's study are one measure of legal CBI, derived from the central bank charters, and three indices of actual independence; (i) the rate of turnover of central bank governors, (ii) an index based on a questionnaire answered

by central bankers in 23 countries, and (iii) an aggregation of the legal index to the rate of turnover. The last measure is defined as *"the fraction of political transitions that are followed within six months by a replacement of the central bank governor"*. The first three indices on the other hand *"reflect, in the first place, the level of independence that legislators meant to confer on the central bank"*<sup>35</sup>. Cukierman's caution concerning an analysis of central bank independence solely based upon legal aspects is twofold. *"First, the laws are incomplete in that they cannot specify explicitly the limits of authority between the central bank and the political authorities under the contingencies ... and second, even when the law is quite explicit, actual practice may deviate from it"*<sup>36</sup>.

### 2.6.1 Measures of Legal Central Bank Independence

Cukierman's analysis of legal central bank independence follows two principles, the application of only a few and narrowly defined legal characteristics and the use of only written information from the central bank constitutions, to determine the degree of independence. The legal characteristics are grouped into four clusters:

- (1) appointment/dismissal procedure and the term of office of the chief executive officer (CEO)
- (2) relationship between government and central bank concerning policy formulation, the resolution of conflicts, and the role of the central bank in the budgetary process
- (3) objectives of the central bank
- (4) limitations on lending to the public sector.

Each cluster consists of different legal variables which are coded on a scale from 1 (most independent) to 0 (least independent). The result is an overall number of sixteen legal variables (Appendix I). The legal variables are weighted differently to indicate which ones are expected to lead to a greater autonomy for the central bank. Cukierman assigned the greatest significance for central bank independence to the

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<sup>35</sup> Cukierman (1994, p. 1439)

<sup>36</sup> Cukierman et al. (1992, p. 355)

first variable, the appointment procedure (weight of 0.20). This stands in contrast to Eijffinger and Schaling's view who assigned the greatest significance to the policy formulation, i.e. is the central bank the sole policy authority? The time frame used covers the four decades from 1950 to 1989, divided into four sub-periods: 1950-59, 1960-71, 1972-79, and 1980-89. Furthermore, Cukierman considered changes in central bank legislation over the period examined. Whenever a change occurred within a decade, it was only considered when the changed legislation was in effect during at least half of that decade. In order to obtain a hierarchy of indices, Cukierman aggregated the individual components of legal independence. The basic sixteen legal variables were aggregated into eight variables. The variables describing the appointment procedure and the term of office of the governor were incorporated in a single variable, called CEO. The variables under policy formulation were also aggregated into a single variable. The objective variable was treated separately as well as the four first variables for limits on lending. The last four variables in this category were averaged with equal weight into a single variable. The final step in the aggregation procedure produced a single index for each country and decade, by aggregating again the eight variables obtained from the first round. The resulting index of legal central bank independence is similar to an index aggregated with equally weighted variables. Table 2.13 ranks the industrial countries according to their index of legal CBI for the period 1980-89<sup>37</sup>.

The central banks of Germany and Switzerland display the highest degree of independence and the lowest average rate of inflation. However, the results in the table do not demonstrate the existence of a clear-cut association between the average rate of inflation and the degree of central bank independence. Japan's central bank for example ranks at the bottom of the table, which indicates a high degree of dependence

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<sup>37</sup> Cukierman et al. (1992, p. 362)

# Measures of Central Bank Independence

Legal Central Bank Independence and Average Annual Inflation, 1980-89		
Industrial Economy		
Economy	Legal central bank independence (index)	Average annual rate of inflation (percent)
Germany, Fed. Rep. of	0.69	3
Switzerland	0.64	3
Austria	0.61	4
Denmark	0.50	7
United States	0.48	5
Canada	0.45	6
Ireland	0.44	9
Netherlands	0.42	3
Australia	0.36	8
Iceland	0.34	32
Luxembourg	0.33	5
Sweden	0.29	8
Finland	0.28	7
United Kingdom	0.27	7
Italy	0.25	11
New Zealand	0.24	12
France	0.24	7
Spain	0.23	10
Japan	0.18	3
Norway	0.17	8
Belgium	0.17	5

TABLE 2.13

on the government. Nevertheless, Japan performs very well in terms of inflation, with the same average inflation as the two countries with the most independent central banks. The same applies to Belgium with a legal index of CBI of 0.17 (least independent) but an average annual rate of inflation of 5 percent. Cukierman's findings seem to confirm Bade and Parkin's conclusion, that central bank laws only influence the inflationary performance in the case of an extremely independent central bank. The Cukierman index of legal CBI classifies again the Bundesbank as the most independent central bank. Although the Bank of England ranks in the bottom half of the table it performs, according to Cukierman's index, better than the Banque de France and the Banca d'Italia. This contrasts with the findings by Eijffinger and Schaling, Bade and Parkin, and GMT who classified in their analyses the two latter



banks as more independent than the Bank of England. Since Cukierman assigned asymmetrical weights to the legal variables, with the most weight on the appointment procedure, it could be instructive to carry out sensitivity analysis with small changes in the weighting of the variables to investigate how this would affect the ranking of the central banks. Even if one would change the weights assigned to the variables, the ranking of the Bundesbank vis-à-vis the Bank of England would remain the same. The Bundesbank's overall performance in terms of independence is for all variables, apart from two, at least equal or better than the Bank of England's score. The only two variables, which are rather insignificant, where the Bank of England outperforms the Bundesbank are 1d; May CEO hold other offices in government?, and 4d, potential borrowers from the bank<sup>38</sup>.

### 2.6.2 Indicators of Actual Independence

The actual degree of central bank independence is determined, as already mentioned, by a whole catalogue of factors which are difficult to quantify. The central bank charter is only one of several elements in this catalogue of factors. Although Cukierman's analyses show that the legal status of a central bank is the most significant factor for the determination of its degree of independence for industrial countries, one should consider other less striking factors as well which have shaped the current constitution in the past and influence the conduct of monetary policy today. Cukierman remarks on this point, "*many central bank laws are highly incomplete and leave a lot of room for interpretation. As a result, factors such as tradition or the personality of the governor and other high officials of the bank at least partially shape the actual level of central bank independence*"<sup>39</sup>.

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<sup>38</sup> See Appendix 2.I

<sup>39</sup> Cukierman et al. (1992, p. 361)

It proves difficult to find systematic indicators of actual independence in cases of divergence from legal independence. Cukierman tried to approach the dimension of actual CBI by developing two indicators of actual independence from the actual frequency of change of the governor and from responses to a questionnaire sent to central bankers of various countries. These two indicators shall not be discussed in great detail within the realms of this paper, since Cukierman's findings suggest an insignificance of the two indicators for the determination of the degree of CBI in industrialised countries. Nevertheless, the findings are highly interesting and especially relevant for the determination of CBI for the set of developing countries. The results show that politically vulnerable and unstable countries, such as the majority of the developing countries, have a high actual turnover of central bank governors which deviates significantly from the legal term of office, as embodied in the respective central bank constitutions. The indicator is based on the presumption that a large turnover of central bank governors indicates a lower degree of independence. One of the most striking examples is Argentina, in which the legal term of office is four years but the actual term of office is less than one year (0.93)<sup>40</sup>, which is due to an informal tradition that the central bank governor is supposed to offer his resignation whenever there is a change of government or finance minister. The actual degree of independence of the Argentinean central bank is, therefore, substantially lower than suggested by the legal index. A low governor turnover does not necessarily imply a high degree of independence since a subservient governor may stay in office for a long time. This might be true for countries with an exceptionally low central bank governors' turnover rate, such as Iceland, the Netherlands, and Denmark. Table 2.14 shows the governors' turnover rates for the group of industrialised countries. Cukierman argues that the threshold turnover, above which CBI declines seriously, is somewhere between 0.2 and 0.25 changes per year, since most countries have an electoral cycle of at least four years. The average

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<sup>40</sup> Cukierman (1991, p. 384)

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turnover rates for all industrialised countries are not higher than 0.20, from which it can be concluded that the central bank governors' turnover rate does not contribute much to explaining variations in independence within that group. On the contrary, in the group of developing countries the turnover rates vary widely and seem, therefore, more likely to reveal variations in the independence of the governors.

<b>Central Bank Governors' Turnover Rates 1950-89</b> (average number of changes per annum) <sup>41</sup>	
<b>Country</b>	<b>Turnover Rate</b>
Iceland	0.03
Netherlands	0.05
Denmark	0.05
Luxembourg	0.08
Norway	0.08
Italy	0.08
United Kingdom	0.10
Canada	0.10
West Germany	0.10
United States	0.13
Finland	0.13
Belgium	0.13
Switzerland	0.13
Sweden	0.15
Ireland	0.15
France	0.15
New Zealand	0.15
Japan	0.20
Spain	0.20

TABLE 2.14

The second indicator is based on subjective answers by qualified individuals to a questionnaire which contained various aspects of CBI. The questionnaire was divided into five groups of issues:

- (1) legal aspects of central bank independence,
- (2) actual practice when it differs from the stipulation of the law,
- (3) monetary policy instruments and the agencies controlling them,
- (4) intermediate targets and indicators,
- (5) final objectives of monetary policy and their relative importance<sup>42</sup>.

<sup>41</sup> Cukierman (1991, p. 383)

<sup>42</sup> Cukierman (1991, p. 386)

Several questions in the questionnaire resemble some of the issues which form the basis of the legal variable, but they focus on the actual practice rather than on the law. Although the judgements given in the questionnaire are subjective, they help to identify differences between actual practice in monetary policy and its legal definition. The questionnaire is composed of seven variables which are weighted asymmetrically, as shown in table 2.15.

Questionnaire Variables and Weights <sup>43</sup>		
Variable Number	Variable Description	Weight
1	Tenure of central bank CEO overlap with political authorities	0.10
2	Limitations on lending in practice	0.20
3	Resolution of conflict	0.10
4	Financial independence	0.10
5	Intermediate policy targets	0.15
6	Actual priority given to price stability	0.15
7	Function as a development bank, granting credit at subsidy rates?	0.20

TABLE 2.15

Each variable is subdivided into different aspects and a numerical code is assigned to each of these aspects. The questionnaire based index of CBI probably contains more information than the legal index, since it questions the actual way in which monetary policy is conducted, which can differ widely from the monetary arrangements embodied in the central bank constitutions. Nevertheless, the main limit of this indicator is the fact that it is only based on responses from a small number of countries. The results indicate clearly that the actual degree of central bank independence in developing countries is significantly lower than suggested by the findings for legal independence. This contrasts with the results obtained for legal independence, where the two groups of countries perform rather similar. Cukierman

<sup>43</sup> Cukierman et al. (1992, p. 366)

received responses from twenty-four countries which are integrated in the questionnaire based index of CBI, shown in table 2.16.

Questionnaire-Based Index of Central Bank Independence <sup>44</sup>	
Country	Questionnaire-based index of central bank independence
Germany, Fed. Rep.	1.00
Costa Rica	0.81
Finland	0.78
Australia	0.76
Italy	0.73
Denmark	0.73
Bahamas, The	0.71
Luxembourg	0.66
France	0.65
United Kingdom	0.64
South Africa	0.64
Zaire	0.61
Lebanon	0.59
Ireland	0.57
Barbados	0.54
Uganda	0.53
Uruguay	0.49
Belgium	0.47
Turkey	0.44
Tanzania	0.38
Peru	0.22
Yugoslavia	0.17
Ethiopia	0.13

TABLE 2.16

Subsequently, Cukierman turns in his analysis to the relationship between inflation and central bank independence. The general hypothesis is that inflation is negatively related to CBI which is based on presumptions put forward by the theoretical literature on 'rules versus discretion'. However, legal independence of a central bank is neither a necessary nor a sufficient condition for low inflation, as the findings by Cukierman and other authors have shown.

<sup>44</sup> Cukierman et al. (1992, p. 388)

In order to investigate the relationship between CBI and inflation, Cukierman regressed inflation on various indices of CBI<sup>45</sup>, related the index of legal CBI and the turnover rate of central bank governors to a transformed inflation rate ( $D$ ), which represents the annual real depreciation of a given amount of money, with  $D = \pi / (1 + \pi)$ , where  $\pi$  is the inflation rate. The transformed inflation rate takes a value from 0 to 1.0. The results of the regression of  $D$  on disaggregated indices of legal CBI are statistically insignificant. Cukierman, therefore, carried out another regression with the aggregate index of legal independence. This time, the aggregate legal variable is statistically significant for the group of industrial countries, which indicates that laws do make a difference. The contrary is observed for the set of developing countries, for which the statistical evidence does not reveal that the central bank constitution contributes to explaining the variations of inflation rates across periods and between countries. The turnover rate for the subsample of industrial countries is insignificant, whereas it is highly significant for the developing countries. Figure 2.2<sup>46</sup> illustrates the relation between the results obtained for the two subsamples, industrial and developing countries.

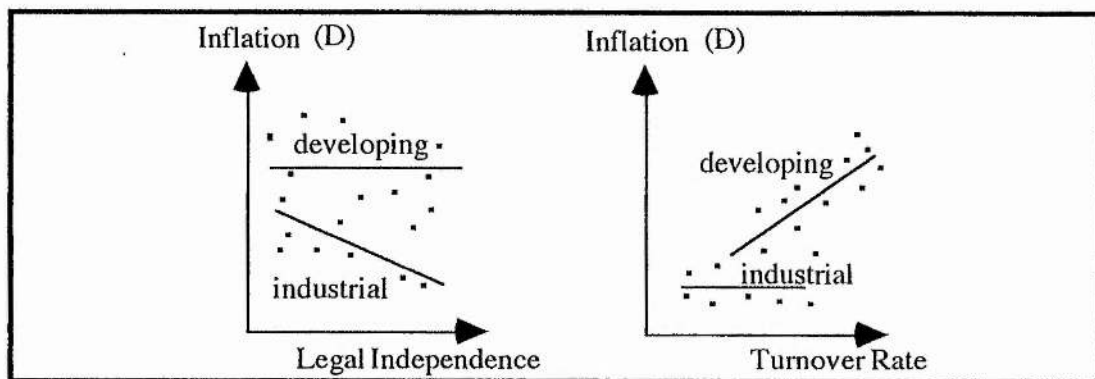


FIGURE 2.2

The left graph shows the partial relation between the aggregate index of legal CBI and the transformed inflation rate ( $D$ ). The significance of legal central bank

<sup>45</sup> details about the regression procedure can be found in Cukierman et al. (1992)

<sup>46</sup> Cukierman et al. (1992)

independence for the inflationary record in industrial countries is indicated by a downward-sloping line. The horizontal line, which displays the results obtained for the developing countries, shows that legal independence does not affect average inflation in this subsample of countries. The right graph reveals the partial relationship between the turnover rate of central bank governors and the transformed inflation rate (D). The upward-sloping line indicates that an increasing turnover rate induces increasing inflation in developing countries. The low and short horizontal line shows that the rate of inflation and the turnover rate are generally lower in the industrial countries.

Previous studies, in particular by Alesina and Grilli et al. focused exclusively on the legal data and found a strong negative relation between the rate of inflation and CBI. Cukierman's indices of independence differ from those constructed in previous papers and it might be instructive and informative to re-examine the earlier results by applying Cukierman's index in order to make the outcomes comparable and to put them into perspective. In summary, Cukierman's results show an inverse relation between legal independence and inflation in industrialised countries, but not in developing countries. In the latter group, the actual turnover rate of central bank governors turns out to be a better proxy to describe the actual independence of the central bank. There is a significant divergence between legal independence and actual independence in developing countries which is due to factors, such as sudden regime shifts and political instability.

### **2.7 The Alesina-Summers Index of CBI**

Alesina and Summers investigate in their paper whether there is a correlation between CBI and the level and variability of real economic variables. The index of central



# Measures of Central Bank Independence

bank independence used in this investigation is a synthetic index, product of an averaging procedure between the index of CBI by Bade and Parkin and a conversion from the GMT index of CBI to BP. The conversion is based on the following rule:

GMT index (i)	conversion
$i > 11$	4
$7 < i \leq 11$	3
$4 < i \leq 7$	2
$i \leq 4$	1

The central banks are ranked from 4 (most independent) to 1 (least independent). The resulting Alesina-Summers index of independence is shown in column four of the following table.

Index of Central Bank Independence <sup>47</sup>				
Country	BP	GMT	Conversion from GMT to BP <sup>1</sup>	Average GMT, BP <sup>2</sup>
	(1)	(2)	(3)	(4)
Australia	1	9	3	2
Belgium	2	7	2	2
Canada	2	11	3	2.5
Denmark	2	8	3	2.5
France	2	7	2	2
Germany	4	13	4	4
Italy	1.5	5	2	1.75
Japan	3	6	2	2.5
Netherlands	2	10	3	2.5
Norway	2	NA	NA	2
New Zealand	1	3	1	1
Spain	1	5	2	1.5
Sweden	2	NA	NA	2
Switzerland	4	12	4	4
UK	2	6	2	2
US	3	12	4	3.5

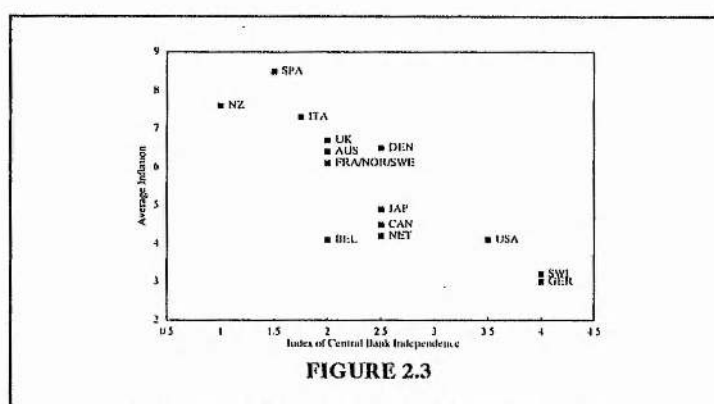
TABLE 2.17

1 rule of conversion is described above

2 average of column (1) and (3)

<sup>47</sup> Alesina/Summers (1993, p. 154)

The resulting index is employed to investigate whether CBI affects the macroeconomic outcome or not. Alesina and Summers plot various macroeconomic variables, covering the period from 1955-88, against measures of CBI. The outcome of the relation between average inflation and CBI is a nearly perfect negative correlation (figure 2.3), which contradicts the findings by Bade and Parkin, and Cukierman, who could not find a clear-cut association between the two variables. The explanation for the different results may be found in the way the Alesina-Summers index of central bank independence is constructed.



Alesina and Summers constructed other charts which show the relationship between CBI and the level and variability of economic growth, between CBI and unemployment, and CBI and interest rates<sup>48</sup>. The conclusion drawn from the empirical evidence is that, although expansionary monetary policy influences real rates in the short run, *"it does not appear that systematically expansionary monetary policy operates to reduce average real rates over a long period"*<sup>49</sup>. Furthermore, the results suggest that CBI does have neither large benefits nor large costs in terms of real macroeconomic performance, but it is associated with monetary discipline<sup>50</sup>. Nevertheless, Alesina and Summers remark that *"the degree of central bank independence is only one of several institutional factors, exchange rate*

<sup>48</sup> Alesina/Summers (1993, p. 155 following)

<sup>49</sup> Alesina/Summers (1993, p. 158)

<sup>50</sup> This confirms Grilli's et al. (1991) view who stated that 'CBI offers a free lunch'.

arrangements, and exogenous shocks that influence economic performance in different countries"<sup>51</sup>.

## 2.8 Masciandaro and Spinelli - A Review and Summary of Determinants of Central Bank Independence

Masciandaro and Spinelli (MS) provide in their paper, published in 1994, a detailed listing and grouping of the factors determining CBI which have been considered so far in the empirical literature. MS determine the degree of independence for all central banks of the OECD countries by ranking them according to the constraints they face. Masciandaro and Spinelli conclude their analysis with an inquiry into the relevance of institutional constraints as determinants of independence by sending questionnaires to central bankers of ten major central banks. Table 2.18 contains the institutional determinants which have so far appeared in previously constructed indices.

Institutional Determinants of Central Bank Independence <sup>52</sup>								
Determinants	1	2	3	4	5	6	7	8
Governor appointed				*		*	*	
Governor term	*	*		*		*	*	
Central bank board appointed	*	*	*	*	*	*		*
Central bank board term	*	*		*		*		
Government participation in the board	*	*	*	*		*		*
Policy responsibility in monetary policy	*	*	*	*	*	*	*	*
Legal provisions in case of conflicts				*	*	*		*
Government-Central bank								
Central bank statutory goals	*			*		*		*
Monetary financing of the budget deficit				*		*		*
Discount rate setting				*		*		
Policy responsibility on banking supervision				*		*		
Financial and budgetary relations		*	*					
Government-Central bank (salaries, profit allocation,...)								

TABLE 2.18

<sup>51</sup> Alesina/Summers (1993, p. 159)

<sup>52</sup> Masciandaro/Spinelli (1994, p. 436)

## Measures of Central Bank Independence

<b>Note:</b>	1 = Parkin (1978)	5 = Burdekin/Willet (1990)
	2 = Bade/Parkin (1982)*	6 = Grilli/Masciandaro/Spinelli (1991)*
	3 = Parkin (1986)	7 = Cukierman (1992)*
	4 = Masciandaro/Tabellini (1988)	8 = Eijffinger/Schaling (1992)*

\* (these papers have been discussed in the previous sections)<sup>53</sup>

The institutional determinants are grouped into two sets, those describing political independence and those determining functional independence. Political independence is defined as *"the possibility for a bank to pursue a strategy of monetary policy consistent with price stability"*, whereas functional independence relates to *"tactics of monetary policy, i.e. to the possibility to freely choose the instruments and techniques of monetary control which ultimately lead to price stability"*<sup>54</sup>. Given the groupings of the institutional determinants of independence, the tables 2.19 and 2.20 show the OECD countries ranked according to their degree of political and functional independence, under consideration of those constraints, which have been considered so far by the empirical literature.

<b>Political Independence of OECD Central Banks<sup>55</sup></b>									
<b>Country</b>	<b>Institutional Determinants</b>								<b>Overall Index of Independence</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	
Australia		*					*	*	3
Austria						*	*	*	3
Belgium				*					1
Canada	*	*					*	*	4
Denmark		*				*	*		3
Finland	*	*	*	*	*	*		*	7
France		*		*					2
Germany		*		*	*	*	*	*	6
Greece			*					*	2
Ireland		*				*	*		3
Italy	*	*	*		*				4
Japan							*		1
Netherlands		*		*	*	*	*	*	6
New Zealand									0

<sup>53</sup> The Alesina/Summers index of CBI is somewhat difficult to break down into separate determinants since it is the product of a conversion from GMT to BP.

<sup>54</sup> Masciandaro/Spinelli (1994, p. 436)

<sup>55</sup> Masciandaro/Spinelli (1994, p. 437)

# Measures of Central Bank Independence

(continued)									
Country	Institutional Determinants								Overall Index of Independence
	1	2	3	4	5	6	7	8	
Norway		*	*	*	*	*			5
Portugal					*				1
Spain				*	*				2
Sweden		*	*			*			3
Switzerland		*			*	*	*	*	5
UK					*				1
US				*	*	*	*	*	5

TABLE 2.19

Note: 1 = governor not appointed by government  
2 = governor appointed for more than 5 years  
3 = all the board not appointed by the government  
4 = board appointed for more than 5 years  
5 = no participation of government representative in the board  
6 = no government approval of monetary policy formulation is required  
7 = statutory requirements that central bank pursues the goal of price stability  
8 = legal provisions that strengthened the central bank's position in case of conflicts with the government  
9 = sum of each row

## Functional Independence of OECD Central Banks<sup>56</sup>

Country	Institutional Determinants							Overall Index of Independence
	1	2	3	4	5	6	7	
Australia	*	*	*	*	*	*		6
Austria			*	*	*	*	**	6
Belgium		*		*	*	*	**	6
Canada	*	*	*	*		*	**	7
Denmark		*			*	*	**	5
Finland							**	2
France				*	*	*	**	5
Germany	*	*	*	*	*	*	*	7
Greece				*		*		2
Ireland		*	*	*		*		4
Italy				*				1
Japan	*		*		*	*	*	5
Netherlands			*	*	*	*		4
New Zealand			*	*		*		3
Norway	*	*	*	*		*	**	7
Portugal				*		*		2
Spain			*	*			*	3
Sweden						*	*	2
Switzerland		*	*	*	*	*	**	7
UK	*	*	*	*	*	*		5
US	*	*	*	*	*	*	*	7

TABLE 2.20

<sup>56</sup> Masciandaro/Spinelli (1994, p. 438)

## Measures of Central Bank Independence

Note: 1 = direct credit facility: not automatic  
2 = direct credit facility: market interest rate  
3 = direct credit facility: temporary  
4 = direct credit facility: limited amount  
5 = central bank does not participate in primary market for public debt  
6 = discount rate set by central bank  
7 = banking supervision not entrusted to the central bank (\*\*) or not entrusted to the central bank alone (\*)  
8 = sum of each row

The resulting indices are highly complete and instructive since they incorporate all the institutional determinants applied in previous indices. Nevertheless, one should note that there is no non-arbitrary way of aggregating the determinants to a composite index. Masciandaro and Spinelli allow trade-offs between the criteria due to symmetrical weighting. The results show a somewhat different ranking of various central banks in comparison to previously constructed indices. This is to a great extent due to the grouping procedure. Finland meets the highest number of institutional attributes of political independence and qualifies with a overall score of 7 as the politically most independent central bank in the OECD countries. Finland is followed suit by Germany with a numerical value of 6 for political independence. The UK performs poorly by obtaining only one asterisk for attribute five, no participation of government representative in the central bank board. The outcome reverses for some countries in the category of functional independence. Germany ranks again at the top of the list with the highest degree of functional independence (index = 7). The central banks of Norway, Canada, and Sweden enjoy the same degree of functional independence as the Bundesbank. Finland on the other hand is highly dependent on the government as an index of two indicates. The Bank of England performs rather well and can be classified as intermediate bank in terms of functional independence. The results show that there is not always a correlation between functional and political independence, which complicates a systematic ranking of the central banks. Because of this lack of correlation, Masciandaro and Spinelli constructed a table

which standardises the rankings of central banks' independence which have come out of the previous empirical literature. The results of this regression classify once again Germany, Switzerland, and the United States as the countries with the most independent central banks (overall independence). MS, therefore, conclude that the rankings obtained by considering all institutional determinants are generally consistent with those of the previous literature.

In the last part of their analysis, Masciandaro and Spinelli investigate the relevance of institutional constraints as determinants of CBI in the view of central bankers. The central bankers were asked (i) to state if something relevant was missing from the list of institutional determinants, and (ii) to assign a weight (in the 0-1 range) to each determinant of independence according to its perceived relative importance. According to the responses, central bankers considered the list of institutional determinants as exhaustive. The following two diagrams<sup>57</sup> show which importance the central bankers attached to the individual determinants.

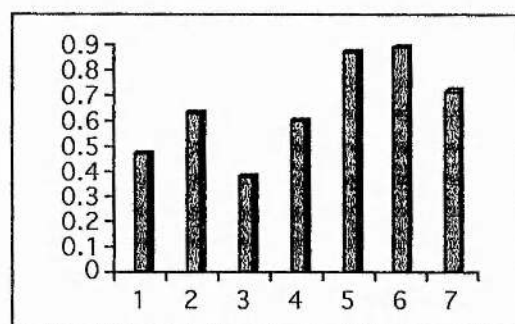


FIGURE 2.4

Note: 1 = governor not appointed by government  
 2 = governor appointed for more than 5 years  
 3 = board not appointed by government  
 4 = no government's representative on the board  
 5 = no government approval of monetary policy  
 6 = statutory requirement that central bank pursues monetary stability  
 7 = legal provision about conflict between central bank and government is required

<sup>57</sup> Masciandaro/Spinelli (1994, p. 441)



## Measures of Central Bank Independence

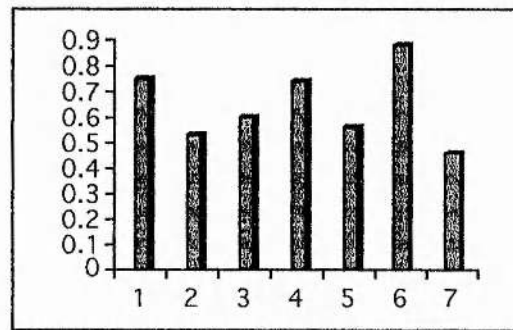


FIGURE 2.5

Note: 1 = credit to the government: not automatic  
 2 = credit to the government: at market interest rate  
 3 = credit to the government: temporary  
 4 = credit to the government: of limited amount  
 5 = central bank does not participate in primary market for public debt  
 6 = discount rate set by central bank  
 7 = banking supervision not entrusted to the central bank alone

In terms of political independence, the central bankers attached great importance to the statutory mandate of the central bank to pursue the goal of price stability (column 7, figure 2.4) and to the independence of the central bank in the formulation of monetary policy (column 6, figure 2.4). The full control over the discount rate (column 6, figure 2.5) and the control of credit to the government (column 1 and 4, figure 2.5) were regarded as most relevant determinants of functional independence.

The information obtained from the questionnaire show that the indicators and determinants considered and established by the empirical literature are meaningful and appropriate for the determination of the degree of central bank independence. Masciandaro and Spinelli conclude from their findings that one should always pay considerable attention to the institutional constraints which central bankers face if one wants to describe, analyse, and compare monetary regimes. Furthermore, *"the indicators of political and functional independence demonstrate how one could bring monetary stability to inflation-prone EU countries"*<sup>58</sup>.

<sup>58</sup> Masciandaro/Spinelli (1994, p. 442)

## 2.9 Concluding Remarks

For many years economists have analysed the optimal conduct of monetary policy purely within a theoretical framework, lacking empirical evidence to confirm the drawn conclusions. With the pioneering work by Bade and Parkin, the empirical dimension was finally approached in a first attempt to compare central bank laws and monetary policy of twelve industrial countries and to construct an index indicating the degree of central bank independence. Studies by Alesina (1988), Grilli et al. (1991), Cukierman (1991), Alesina and Summers (1993), Eijffinger and Schaling (1993), and others followed, providing more empirical evidence for the intellectual case for CBI by taking more countries and institutional constraints into consideration. The resulting indices differ from each other in the number of institutional constraints incorporated, in the number of countries considered, in the weights assigned to the individual attributes, and in the aggregation procedure. Nevertheless, the overall outcome is the same, with minor variations in the ranking of some central banks as a result of interpretation and criterion effects<sup>59</sup>. However, before drawing conclusions from these legal indices, one should be aware of the fact that there are various problems associated with such indices which are not to be neglected. As various studies<sup>60</sup> show, there is a possibility that actual monetary practice deviates from the central bank law which calls for an index reflecting actual independence. Cukierman investigated in his study this dimension by sending a questionnaire to central bankers of various countries to consider the spirit of the law and its application in practice and constructed an index of actual CBI. The findings suggest that the index of actual independence is a better indicator to describe the monetary arrangements in developing countries rather than the index of legal independence. In the group of industrialised countries, deviations in the legal implementation from the central bank

<sup>59</sup> See for explanation p. 56 following

<sup>60</sup> Cukierman (1992) and Eijffinger/Schaling (1994)

laws are less common. One can therefore conclude that the legal index of independence is indeed an appropriate indicator to describe monetary reality in the latter group of countries. Moreover, according to a Pearson correlation test for positive correlation between empirical and legal CBI, carried out by Eijffinger et al. in 1994<sup>61</sup>, the ES index is the only index which shows a significantly positive relation with actual independence on a level of one percent. Therefore, the ES index seems to be the best proxy to capture both sides, the law and the actual implementation of the law and is for that reason slightly more difficult to construct and likely to change more frequently, whenever changes in the actual practice occur.

Another problem of purely legal based indices is that laws are incomplete in terms of an explicit specification of the division of authority between the central bank and the government which leaves often room for interpretation. There are other than legal factors, such as tradition, personalities, historical as well as political factors which partly shaped the existing monetary arrangements and affect the application of the law in practice<sup>62</sup>. These factors are hard to quantify and to define, which makes it difficult to find a systematic indicator. In the various indices, the interpretation of the law always incorporates unavoidable subjective elements leading to different numerical values for the indices of some central banks. Another problem lies in the impossibility to aggregate the criteria applied to the sample countries in a non-arbitrary way. As mentioned earlier, the weighting procedure varies between the indices, a symmetrical weighting of the criteria could lead to trade-offs between the different attributes, whereas the problem of an asymmetrical weighting is the differing views concerning the importance attached to the individual criteria.

Although it is generally accepted that central bank independence is a useful institutional device, which exerts a restraining effect on money growth, the empirical

<sup>61</sup> Eijffinger/van Rooij/Schaling (1994, p. 23)

<sup>62</sup> Banaian et al. (1983)

findings, however, do not demonstrate such a clear-cut inverse relation between legal independence of central banks in industrialised countries and the average rate of inflation, as claimed by the theoretical literature. The general claim is that CBI is negatively related to the level and variance of inflation and not related to the average economic growth rate. Cukierman's findings invalidate this proposition for the group of developing countries, where the statistical results do not provide evidence that central bank laws contribute to explaining different rates of inflation across periods and between countries. On the other hand, the proposition is valid for the group of industrial countries as the findings by various authors show. Eijffinger and Schaling (1993) tested these propositions by regressing the average rate of inflation, the variance of inflation, and the average economic growth rate on the Bade-Parkin index, the Alesina index, the GMT political index, and their own index of central bank independence. They find that the empirical results confirm the theoretical relation between CBI and the average rates of inflation and economic growth, while no positive significant relation between CBI and the variability of inflation could be found<sup>63</sup>. The latter result stands in contrast to findings by De Haan and Sturm<sup>64</sup> who found a negative significant relationship between CBI and inflation variability for the period 1961-1987.

Despite the shortcomings and the criticism, the empirical literature succeeds in demonstrating that institutional constraints on central banks' behaviour matter a lot in theory as well as in practice. Indices of central bank independence provide a valuable insight into the design of monetary regimes and the ground on which diverging outcomes of monetary policy can be analysed and explained. As the results of the empirical analyses have shown, the central banks of Germany and Great Britain differ fundamentally in their respective legal arrangements and mandates. The Bundesbank

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<sup>63</sup> The results of the study by Eijffinger et al. (1994) confirm these findings.

<sup>64</sup> De Haan/Sturm (1992, pp. 310-12); Alesina (1988) found also that CBI reduces inflation variability. Bade and Parkin (1988), however, did not find evidence for reduced inflation variability.

is one of the most independent central banks, whereas the Bank of England is highly dependent on the government. The actual conduct and outcome of monetary policy in these two monetary regimes are subject to a detailed analysis in the second part of this paper, to corroborate the 'intellectual case for CBI' on the basis of these two concrete examples of alternative monetary arrangements.

# **CHAPTER III**

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## The Conduct of Monetary Policy in the United Kingdom: An Assessment

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### 3.1 Introduction

The occurrence of stagflation in the 1970s in many industrial countries, which painfully demonstrated the invalidity of the assumed trade-off between inflation and employment<sup>1</sup>, as the study by W. Phillips in 1958 had suggested, also had an impact on the conduct of monetary policy in the United Kingdom. Moreover, the comparative success of the West German and Swiss economies encouraged the authorities to direct their attention towards the achievement of *"a proper consistency and coherence of fiscal and monetary decision-making ... to provide a convincing and persuasive public presentation of such decisions"*<sup>2</sup>. The setting of monetary targets seemed to provide such a framework and the emphasis of monetary policy in the United Kingdom shifted towards targets and monetary rules. The first target was published for the broad monetary aggregate  $M_3$  in autumn 1976<sup>3</sup>, which was adopted to serve as a constraint upon other policy objectives, which then were still conducted along Keynesian lines, until the change of government in 1979.

British monetary history of the past two decades is marked by a persistent search for a framework of monetary policy, which would provide the basis for monetary stability and low inflation. The conduct of monetary policy in the UK experienced considerable changes in its main objectives, in the means to achieve them, and in the place of this policy itself in the management of the economy. Landmarks in British

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<sup>1</sup> See Friedman's 1976 Nobel lecture

<sup>2</sup> BEQB (June 1983, p. 201)

<sup>3</sup>  $M_3$  comprises the UK banking system's total sterling deposit liabilities to the domestic private sector.



monetary policy of the past two decades were the introduction of monetary targets in 1976, the launch of the Medium Term Financial Strategy (MTFS) in 1980 by the Conservative government under Mrs. Thatcher, EMS membership, and the launch of a new strategy of monetary policy in the UK in 1993, centred around the introduction of published annual inflation targets. The main purpose of such devices was to serve as a constraint on the conduct of monetary policy, increasing the accountability and transparency of policy decisions.

The institutional arrangement in which British monetary policy is embedded is of crucial importance to understanding and explaining these policy changes and the different policy outcomes. The Bank of England is dependent on the Treasury and the final authority over monetary policy, therefore, rests with the government. In situations where the Bank of England and the Treasury advocate diverging views concerning the most appropriate policy action at a certain time, the view of the government usually determines the final policy choice.

As outlined in chapter one, monetary policy, if entrusted in discretionary fashion to policy makers, does not infrequently lead to an inflationary outcome. Furthermore, it was argued that discretionary monetary policy lacks consistency and credibility, since there is no institutional device, preventing policy makers from using this policy as an instrument to improve their re-election prospects. The UK's inflation record, especially of the 1970s, seems to confirm this assumption. Although the authorities succeeded in bringing inflation down in the 1980s, the monetary targets were frequently missed<sup>4</sup> and the repeated changes of devices employed to make the anti-inflationary commitment of the government more credible, induced instability into the economy.

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<sup>4</sup> Between 1980 and 1986, the annual  $\text{£M}_3$  targets were achieved only twice, in both cases after an upwards revision of the original target ranges.

This chapter provides a detailed insight into British macroeconomic performance of the past two decades, with a shorter recourse to the policies of the 1960's and early 1970's and attempts to show how the monetary arrangement in the United Kingdom affected the policy decisions and outcomes.

## **3.2 British Macroeconomic Performance and Monetary Policy in the 1960s and 1970s**

### **3.2.1 The 1960s**

During the 1960s, the major objectives of macroeconomic policy in the United Kingdom have been the acceleration of the sustainable rate of growth of the economy and the rectification of the balance of payments, without sacrificing the goal of a high level of employment. These objectives were primarily pursued by means of fiscal policy (taxes, government spending) and interest rates. The policy of full employment led to a steady increase in the public sector's activity in the economy and the borrowing requirement of the central government grew rapidly, from a position of about balance in 1958/59 to £1,335 million in 1967/68<sup>5</sup>. The dominating constraint on the government's demand management was the maintenance of the dollar/sterling exchange rate within the framework of the fixed exchange rate system of Bretton Woods. Monetary policy played a permissive role primarily in this regime and "*monetary measures were largely taken as supporting elements in general 'packages' of measures*"<sup>6</sup>. The policy on interest and exchange rates was solely in the hands of the Prime Minister and the Chancellor at the time<sup>7</sup>. The major concern of monetary

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<sup>5</sup> BEQB (December 1969, p. 449/450); The Radcliffe Committee (1959, paragraph 528) pointed out in its report on the working of the monetary system that they could not find an "*automatic rule for restricting a Government that is determined to spend*" .

<sup>6</sup> BEQB (December 1969, p. 449)

<sup>7</sup> "At no time from October 1964 onwards was either the Bank or the Treasury asked for a position paper on the exchange rate; they were obliged to wait on events while devising what expedients they could to defend the parity." Cairncross (1988, p. 58)

policy was the management of interest rates, adjusted according to the state of the balance of payments, and the control of bank lending to the private sector.

From 1953 until 1967, the inflation rate never exceeded five percent and the unemployment rate remained under three percent, apart from one episode in the first quarter in 1963, where the unemployment rate rose above this level. Nevertheless, as Laidler<sup>8</sup> remarks, the unemployment target set for this period was too low and the country experienced an inflation rate which was higher than the average rate of inflation in the rest of the world, leading consequently to a secular deterioration of the balance of payments. The fixed exchange rate system and a low world inflation lay at the root of the apparent success of Keynesian policies in the United Kingdom until 1967. At that time, the path of inflation was primarily determined by the inflationary behaviour of the United States as the world's largest economy. At the close of the decade, the Bretton Woods system became increasingly under pressure, the competitive position of the United States deteriorated gradually, aggravated by the economic consequences resulting from the Vietnam War and rising inflation whilst the US payments deficit widened considerably<sup>9</sup>.

In the second half of the 1960s and the beginning of the 1970s, studies on the demand-for-money function had been carried out<sup>10</sup>, suggesting a relatively stable function and a adequately reliable relationship between  $M_3$  and nominal incomes. Further econometric research in the nature of  $M_3$  encouraged the authorities to attach a greater importance to the money supply than before. This was due to two separate reasons as pointed out by J S Fforde<sup>11</sup>:

*"first, because ... nominal interest rates, in conditions of persistent and volatile inflationary expectations, were a poor*

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<sup>8</sup> Laidler (1978, p. 55)

<sup>9</sup> In the first quarter of 1971, the US payments deficit ran at an annual rate of \$20 billion. (source: Palgrave's Financial Dictionary)

<sup>10</sup> Laidler/Parkin (1970) and Goodhart/Crockett (1970)

<sup>11</sup> Fforde in BEQB (June 1983, p. 202)

*guide to real interest rates and hence to the 'thrust' of monetary policy. Money supply growth, relative to GDP, was a better guide; ... Second, because the supposed responsiveness of this better guide to acceptable movements in nominal interest rates suggested that the needs of monetary policy could be met without persistent recourse to direct controls over bank lending to the private sector" .*

A comparison of the empirical evidence for different countries reinforced the case for using the money supply as an indicator or target of monetary policy. In the late 1960s, the authorities became increasingly concerned with monetary aggregates and their properties. The money demand relationship provided the ground for the use of a new method of monetary control.

### **3.2.2 The Experience of the 1970s**

During the 'reign' of Bretton Woods, excess demand pressure in the UK appeared in the form of a balance of payments deficit rather than in a higher rate of inflation. At the turn of the decade, the rate of inflation was slowly creeping up and unemployment tended to rise. The performance of economic growth in the 1960s had been perceived as rather unsatisfactory, with an average growth rate of GDP of under three per cent, and led in 1971 to the launch of an expansionary budget by the Conservative government to initiate a 'go for growth' and growth did indeed experience an upswing. In May 1971, the Bank of England published a discussion document entitled 'Competition and Credit Control' (CCC) which introduced new measures to enhance competition. The introduction of such measures was mainly a response to repeated criticism by the National Board for Prices and Incomes (PIB) and the Monopolies Commission concerning the clearing banks' interest rate cartel since 1955. The PIB demanded the abolition of the cartel and the extension of balance-sheet controls to all banks and near banks. In recognition of the views expressed by both authorities, CCC was finally implemented. The core of the new approach "was a system under which

*the allocation of credit is primarily determined by its cost*"<sup>12</sup>, with each bank setting its own lending rate on the basis of an individually determined base rate, reflecting commercial as well as market considerations<sup>13</sup>.

In 1972 the money supply started to expand, which was beside other factors largely due to the Competition and Credit Control reforms and the large public sector borrowing requirement (about four per cent of GDP), coupled with the commitment to low interest rates<sup>14</sup>. In 1972 sterling was floated to ease external constraints, subsequently followed by the final collapse of Bretton Woods in 1973, which was regarded by the leading countries as a liberation from unpopular constraints. In October 1972, a major change of policy in official money market operations occurred, the bank rate (the Bank of England's traditional rediscount rate) was replaced by a market-determined minimum lending rate (MLR), which equals the average discount rate for Treasury bills at the tender plus 0.5 per cent, rounded up to the nearest 0.25 per cent. In the past, the bank rate had often moved out of line with the rates on other securities. The decision was taken on account of the fact that administered changes in the bank rate were too 'political'.

The first two years after the CCC reform witnessed a rapid expansion of the monetary aggregates,  $M_3$  grew with an average annual rate of 26% in the two years to September 1973<sup>15</sup>. Consequently, the bank rate was raised from 7.5 per cent in July to 13 per cent in November and drastic cuts in government spending were announced in an emergency budget on the 17 December 1973. The authorities felt obliged to

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<sup>12</sup> Hall (1983, p. 8)

<sup>13</sup> In the first Mais lecture on the 9 February 1978, the governor pointed out that the CCC was first "a move away from reliance on direct restrictive controls in the monetary sphere. ... More positively, it was a move towards a system in which market forces could play a predominant role. ..., importance was now attached to the monetary aggregates; their rate of growth was to be controlled by the market instrument of interest rates". BEQB (March 1978, p. 32)

<sup>14</sup> Cairncross (1988, p. 58) argues that the introduction of CCC should have been buttressed by a greater readiness to let interest rates fluctuate to exercise sufficient control over credit.

<sup>15</sup> Between 1971-73, clearing banks had expanded their lending by 112 per cent, and 'other' banks had probably more than trebled theirs, which led to an explosion in property values. (Cairncross, 1988, p. 59)

exercise discretion and re-imposed direct credit controls on the banking sector, in the form of a new instrument, the Supplementary Special Deposit scheme or 'corset'. Banks had to pay a penalty in the form of non-interest bearing deposits on accounts in the Bank of England, whenever the growth of 'interest-bearing eligible deposits' exceeded a certain allowable base. The situation was aggravated by the world-wide explosion of primary product prices which gave additional boost to the rate of inflation, already rising due to the expansionary monetary policies in the UK during the first years of the 1970s.

The first oil price shock in 1973-4 marked the end of the post-war boom and produced in many industrial countries a combination of high inflation and rising unemployment. The Labour government of 1974 tried to conduct its policies along Keynesian lines in the face of acute inflation<sup>16</sup>, output fell in 1974 and 1975, and unemployment doubled. The authorities faced an increasing loss of credibility which impeded debt sales and weakened the external confidence in sterling. Subsequently, in the wake of an exchange rate crisis, the UK authorities had to agree to an IMF financial programme in 1976, which in return led to the imposition of ceilings on the UK's Domestic Credit Expansion for the following two years, coupled with a tightening of fiscal policy. A second major shock to the world economy occurred in 1979, as oil prices more than doubled and prices of precious metals experienced a dramatic upsurge. This coincided with an apparent weakness of the American presidency which induced growing scepticism regarding the longer-term prospects of US inflation and was reflected by a strongly weakened US dollar in 1978. The second oil price shock, however, resulted in a more determined and broader commitment in the major industrial countries to pursue an anti-inflationary monetary policy.

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<sup>16</sup> The rate of inflation in the United Kingdom peaked at of 29.9 per cent in August 1975.



In the course of the 1970s, the 'corset' was re-imposed three times<sup>17</sup> and although it proved nominally effective and the growth of the monetary aggregates slowed down<sup>18</sup>, the market increasingly innovated 'ways around' the 'corset controls'. Throughout the 1970s, the markets, in response to the various controls imposed upon them, developed a whole new range of financial instruments, so-called financial innovations, which gained considerable importance in the banking sector as well as in the money markets. Foreign exchange markets experienced a major expansion, banks engaged themselves increasingly in liability management<sup>19</sup> (banks obtain the deposits required to match their lending in the wholesale market), improved terms and interest rates on large deposits as well as medium term variable rate loans became available in the company sector, building societies provided improved terms and rates of deposits, and the gilt-edged market offered new varieties and issue techniques<sup>20</sup>. In the second half of the 1970s, Keynesian demand management came increasingly under criticism reflecting the experience of high inflation in the mid-1970s and the apparent difficulties of incomes policy solutions<sup>21</sup>. A new stimulus towards the finding of market-based solutions to the control of the money supply was given and the political economy of 'monetarism' became increasingly influential towards the end of the decade - the conduct of monetary policy shifted away from 'discretion' towards 'rules'.

The monetary policy choices made in the 1970s by the British authorities and the inflationary record of the United Kingdom give rise to the assumption that the outcome would have been somewhat different with an independent Bank of England, after the policy constraint imposed by the Bretton Woods system had disintegrated.

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<sup>17</sup> Artis/Lewis (1991, p. 16) state that "*the repeated use of the weapon invited a problem of 'instrument instability'*" which led on the side of the banks to an inflation of their liabilities base prior to the corset's application.

<sup>18</sup> Artis/Lewis (1991, p. 16)

<sup>19</sup> Llewellyn et al. (1982, p. 23) note in this context that "*in a regime of active liability management, banks can force the Bank of England into conflict situations between exchange rate, interest rate and monetary targets. These conflicts are particularly acute in the UK because of the apparently low sensitivity of the demand for bank credit with respect to interest rates and the effect interest rate movements have on the exchange rate.*"

<sup>20</sup> Cobham (1988, p. 248)

<sup>21</sup> Emminger (1984)



Although policy tools directed at a high level of employment had been used by all major industrial countries in this period, the comparative success and the inflationary record of the German economy at the time seem to suggest that the respective monetary arrangement played a role in limiting the scope of application of such measures by the German authorities<sup>22</sup>. Laidler<sup>23</sup> argues that

*"the basic error committed has been to neglect to control the money supply while pursuing an unrealistically low unemployment target, primarily by fiscal means. Monetary expansion, largely a by-product of 'full employment' fiscal policies, has been responsible for the high British inflation rate of the early 1970s"*.

An independent central bank would have imposed some disciplinary effect on British macroeconomic policy and is likely to have led to less expansionary policy choices in the early 1970s.

### **3.3 Monetary Targeting in the United Kingdom**

#### **3.3.1 Monetary Aggregates as Intermediate Targets**

Generally, one can distinguish between two groups of intermediate target variables; indicator variables with predictive value and those without real predictive content. The latter serve as intermediate indicators from which useful information about a variable of interest can be obtained (i.e. monetary aggregates), whereas the former reflect to some extent the thrust of policy (i.e. exchange rate). The choice of the target variable depends critically on the source of the shocks which occur in the economy. The results of studies on the robustness of the variables under different circumstances generally<sup>24</sup> suggest that exchange rate or interest rate targets are to be preferred when

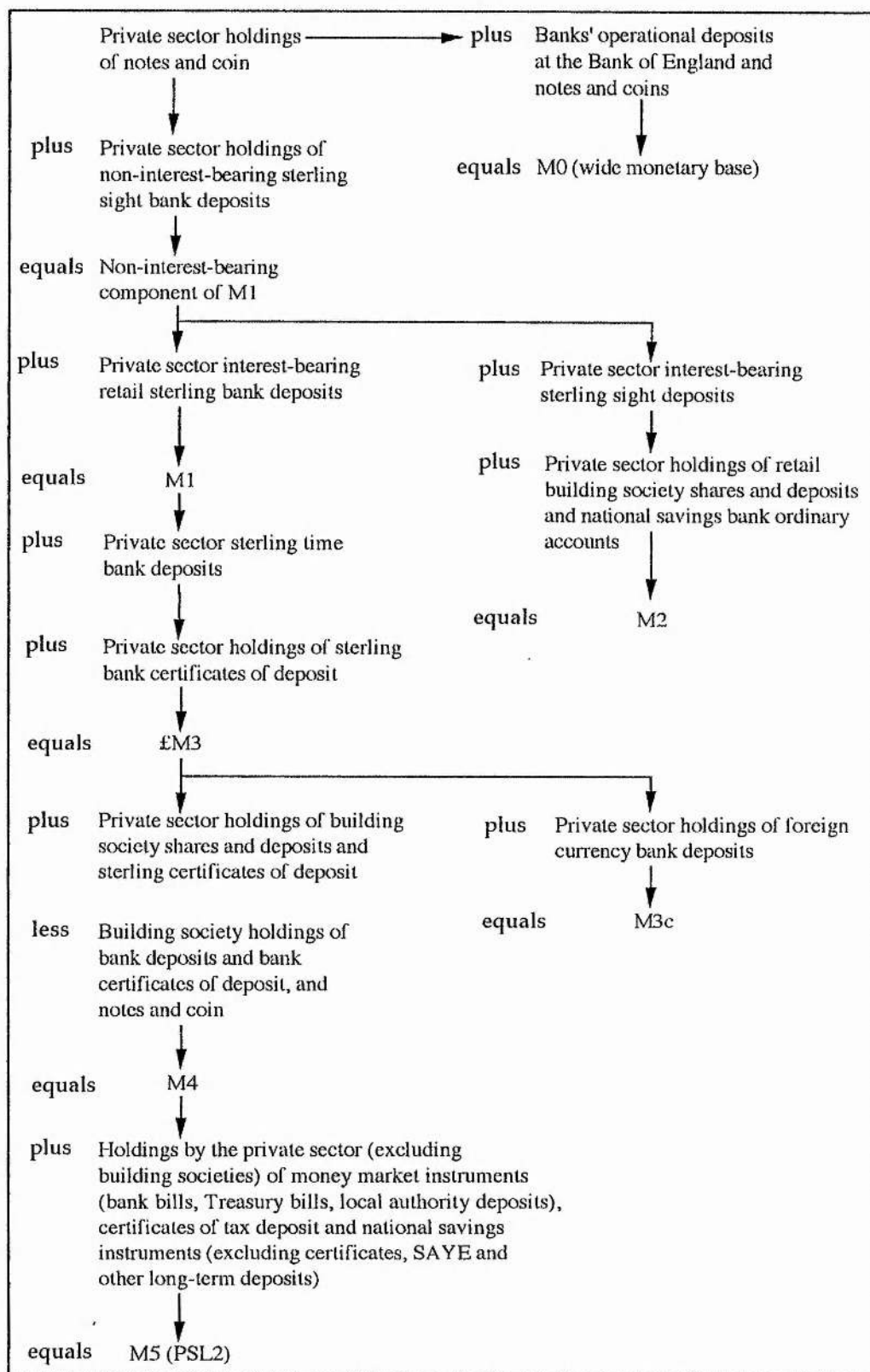
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<sup>22</sup> At the time, when the first oil crisis hit the world economy, the comparative economic strength of Germany did, however, significantly affect its capacity to cope with a shock of that magnitude.

<sup>23</sup> Laidler (1978, p. 52)

<sup>24</sup> There are cases where the results are rather uncertain

## Monetary Policy in the United Kingdom



**Figure 3.1** Relationships among monetary aggregates and their components.  
(source: Artis/Lewis, 1991, p. 137)

the cause of instability lies in the demand-for-money function. Monetary aggregates, on the other hand, are recommended when the shocks come from domestic spending or overseas prices<sup>25</sup>. Furthermore, there are other factors which exercise a significant influence on the choice of the target variable, such as the distribution of the shock and the content of the authorities' objective function. These factors, however, can change over time which in return might affect the choice of the target variable.

In 1976, the authorities in the United Kingdom started to publish target ranges for monetary aggregates. Monetary aggregates are divided into two groups; Aggregates of narrow and broad money (Figure 3.1). The importance attached to the target aggregates has varied considerably over time. With the introduction of the Medium Term Financial Strategy (MTFS) in 1980, monetary targets became the primary focus of monetary policy, chosen to assist in the politically declared fight against inflation. Growing unpredictability in the behaviour of the target aggregates and increasing doubts about their central importance led to the abandonment of targets for broad money in 1986. In the search for a new means of credibility in monetary policy, broad monetary aggregates were rediscovered by the British authorities in 1993.

### 3.3.2 The Introduction of Monetary Targets

Since the early 1970s, the authorities studied the empirical behaviour of  $M_3$  and the results of this observation had been somewhat encouraging. The growth path of  $M_3$  seemed to display some similarity with the growth of inflation<sup>26</sup> at the time, with a time-lag of two years. Nevertheless, the authorities showed concern about the reliability of the evidence since  $M_3$  had undergone a considerable structural change

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<sup>25</sup> Artis/Lewis (1991, pp. 127/128)

<sup>26</sup> The growth of  $\text{£}M_3$  reached its peak in the fourth quarter of 1973 with 27.4% and the rate of inflation peaked in August 1975 at 29.9%.

and expanded rapidly following the CCC reform in 1971<sup>27</sup>. Furthermore, econometric studies on  $M_3$  from the 1960s proved useless after the reform had taken effect. Some optimism that this was to prove a temporary phenomenon remained, however.

Subsequent to 1973, the political and market opinion remained very sensitive to developments in the money supply with implications for the exchange rate as well as for the financial markets. The authorities took the position that

*"it now seemed that the growth of  $M_3$  within reasonable limits could be directly influenced, occasionally to a high degree, by a combination of direct controls and an active policy of debt management. So although there was at first no formal or published money supply target, the course of  $M_3$  was a fairly strong policy constraint after 1973"*<sup>28</sup>.

In 1974-75, the growth of  $M_3$  slowed down, yet it proves rather difficult to estimate how much of the relative decline can be attributed to a shift in the authorities' emphasis and how much was due to the sudden fall in the velocity of circulation of  $M_3$  in 1972-73, which slowly started to return to its former trend level. Between 1974 and 1976, the Bank of England used internal money supply targets as an informal policy guide<sup>29</sup>. In autumn of 1976, the short step to the publication of the first official annual target for  $M_3$  was taken to restore financial confidence. The introduction of published monetary targets in the United Kingdom followed a general trend in other major industrial countries which adopted in growing numbers published monetary targets, starting with Germany in 1974.

The merits of published monetary targets were perceived as threefold; firstly they provide a basis for stability in and consistency of monetary and fiscal decision-

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<sup>27</sup> "... the development of the broader monetary aggregates came increasingly to depend on interest-rate relativities - between wholesale money rates, Treasury bills and local authority rates on one hand and bank lending rates on the other - rather than on the average level of rates" BEQB (March 1978, p. 32)

<sup>28</sup> BEQB (June 1983, p. 203)

<sup>29</sup> BEQB (June 1983, p. 203)

making. Secondly, they might affect positively future inflationary expectations and therefore decrease the costs of reducing inflation<sup>30</sup>. Thirdly, such targets reduce uncertainty about the future conduct of monetary policy on the side of the private sector and therefore make the authorities' policies more credible and accountable. Despite the introduction of monetary targets, the attitude of the British authorities to the balance between monetary targets and Keynesian income policies was rather unclear during this period, as the following statement by the governor in 1978 indicates.

*"The main purpose of having publicly announced monetary targets is, therefore, to provide a basis for stability. Stability does not, however, imply rigidity. There can be occasions when policy needs to be adjusted because circumstances have changed. There is a case for adjusting monetary policy, as well as fiscal policy, to offset cyclical swings in the economy"*<sup>31</sup>.

Table 3.2 shows the targets set for the monetary aggregate  $M_3$  and their outcome between 1976 and 1979.

Targets for $M_3$ , 1976 - 1979 <sup>32</sup>		
Year	Target	Outcome
1976/77	12	10
1977/78	9-13	16
1978/79	8-12	11

TABLE 3.1

The first two years after the adoption of monetary targeting were marked by a significant divergence from the target. The first target was undershot and the second target was exceeded by a considerable margin. In the second year of monetary targets in the UK, the authorities' did not demonstrate a serious commitment to the target, since the policy decisions were determined by the concern to maintain the competitive advantage for the British manufacturing industry of the prevailing low

<sup>30</sup> Cobham (unpublished)

<sup>31</sup> BEQB (March 1978, p. 34)

<sup>32</sup> Dow/Saville (1988)

exchange rate. Heavy interventions in the foreign exchange market were made, accompanied by a progressive reduction in short-term interest rates. The next target, from April 1978 to April 1979, was met. The experience with the first two targets led the authorities to introduce 'rolling' targets (assessment of the target before the previous target period has been fully completed to consider newly obtained information on the economy) in October 1978<sup>33</sup>. The first rolling target was overshoot by a relatively small margin.

One of the last acts of the Labour government was to set up a Committee of Inquiry which examined the roles of the Treasury and the Bank of England in the conduct of monetary policy. In its final report, the Committee concluded that there is no necessary relation between an effective conduct of monetary policy and an assignment of more independence, coupled with specific statutory objectives to the Bank of England. Furthermore, the report outlined the various changes which had occurred over the past two decades and had broadened the Bank's responsibilities and influence. These developments had helped to increase, in the Committee's view, the accountability of the Bank to the Parliament.

The victory of the Conservative party in the election of May 1979 marked the turning point in the conduct of monetary policy in the United Kingdom and was manifested by a *"radical change in macroeconomic strategy. Colloquially, monetarily constrained 'Keynesianism' was replaced by 'monetarism'"*<sup>34</sup>.

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<sup>33</sup> The governor argued in his Mais lecture in favour of 'rolling' targets by stating that the *"drawback of the present annual targets has been the implied requirement to hit a particular number on a particular date. The various time-lags in the system make it difficult, and certainly highly undesirable, to try to offset undesired monetary movements very rapidly."* (BEQB, March 1978, p. 37)

<sup>34</sup> BEQB (June 1983, p. 203/204)



### 3.3.3 The Medium Term Financial Strategy, 1980-86

#### 3.3.3.1 1979-82

After its victory in the elections in May 1979, the Conservative party took office and made monetary policy to the centrepiece of its economic strategy. In his first budget, the Chancellor reconfirmed the government's commitment to focus monetary policy primarily on the control of the growth of the monetary aggregates. The government had no explicit inflation target, its primary policy objective, however, was a sustained reduction in inflation in order to provide the economy with favourable conditions for a sustainable growth in output and employment<sup>35</sup>. Monetary targets were perceived as the means of defeating inflation. Shortly after the new government had assumed office, public-sector wages were raised substantially, following a pre-election commitment. The VAT rate was raised from 8 per cent to 15 per cent in order to fill the financial gap left by a cut in direct taxes. The target set for  $M_3$  for the financial year 1979/80 was met. The experience of the secondary banking crisis and other factors gave an impetus to strengthen the legal basis of the Bank of England's regulatory powers which led to the enforcement of the Banking Act in 1979.

The new government strongly believed in free markets and the efficiency of market forces in the allocation process. Since monetary targets were the declared primary means to defeat inflation, the exchange rate was left to adjust freely in response to market forces. Between June and October 1979, exchange rate controls were abolished, which exposed the domestic banking industry to international competition and restored the power of arbitrage to equalise onshore and offshore sterling interest rates. At that time, direct controls on bank lending were still in force, but this new freedom triggered an increase in disintermediation, partly involving offshore banks as well, which consequently led to the abolition of the 'corset' in 1980. In the face of this

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<sup>35</sup> The new government decisively rejected the idea of a positive trade-off between monetary growth (inflation) and output.



situation, the Chancellor announced in the 1980 budget the adoption of a Medium Term Financial Strategy. Monetary policy became fully integrated into the general economic strategy of the government which reduced the potential for an independent monetary policy by the Bank of England. The fiscal policy decision on the size of the budget deficit was subordinated to the authorities' commitment to control the growth of the monetary aggregates at acceptable levels of interest rates. In the framework of the MTFS,  $M_3$  was retained as the single target aggregate although *"it was recognised that experience hitherto in achieving fairly close control of this aggregate was not entirely reassuring. But it was felt that the answer to this might lie in changing the methods of control rather than the target aggregate itself"*<sup>36</sup>. The new targets were set for a medium term period, alongside targets for the budget deficit in the form of the Public Sector Borrowing Requirement in relation to gross domestic product (GDP), which were made subordinate to the new monetary standard<sup>37</sup>. The core of the MTFS was the deceleration of monetary growth over the medium term, manifested in lower target rates for the growth of broad money for each of the subsequent years. The original MTFS targets, published in the 1980 budget, are shown in table 3.3.

Original MTFS targets <sup>38</sup>		
year	PSBR/GDP ratio	growth of £M <sub>3</sub>
1980/81	3.75	7-11
1981/82	3.00	6-10
1982/83	2.25	5-9
1983/84	1.5	4-8

TABLE 3.2

It was hoped that projecting the declared policy goals over a longer period of time would influence people's expectations of future inflation and output, reducing

<sup>36</sup> BEQB (June 1983, p. 204)

<sup>37</sup> £M<sub>3</sub> is linked to PSBR since the increase in £M<sub>3</sub> equals the increase in lending to the private and public sector and net external flows, the increase in lending to the public sector again equals the part of PSBR which is not financed by sales of government securities to the private sector

<sup>38</sup> source: Brown (1990, p. 104)

uncertainty and would lead to more political credibility. The apparent disadvantage of such a medium term strategy is that it reduces the degree of flexibility of policy to offset unexpected disturbances, which are difficult to forecast at the time when the targets are set. Successive versions of the MTFS in subsequent budgets were marked by various modifications to the original.

The experience with the 'growth policies' of the 1970s, shifted the emphasis towards private 'entrepreneurship' as the source of growth, which implied a major shift in the thrust of economic policy. A reduction in size of the public sector, an abolition of the various controls imposed upon the private sector, as well as restraining the power of the trade unions were seen as necessary preconditions for such a shift<sup>39</sup>.

The key features of the MTFS can be summarised as follows;

- a) The defeat of inflation became the primary macroeconomic policy objective.
- b) Monetary targets were the means to achieve this objective on the assumption that there is a stable demand for money function.
- c) The achievement of the objective was embedded in a medium term strategy which was perceived as essential to reduce uncertainty in the economy and to strengthen the confidence in the government's policies; the targets were set at a declining profile.
- d) Interest rates were the instrument to control the growth of the monetary aggregates and would, therefore, be raised to whatever level was needed to assure that monetary growth was within target range.
- e) Targets were set for the Public Sector Borrowing Requirement (PSBR) in relation to GDP to prevent additional pressure upon interest rates from the side of the public sector. Fiscal policy in terms of the budget deficit was subordinated to monetary policy.
- f) The MTFS had an insular nature<sup>40</sup> (there was hardly any reference made to external factors, such as the exchange rate).

The choice of  $\text{£M}_3$  as the central target variable met with doubts whether the relationship between monetary growth and nominal incomes was indeed reliable in the face of an already apparent instability in the British demand-for-money function.

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<sup>39</sup> Brown (1990, p. 102/103)

<sup>40</sup> Brown (1990, p. 104)

However, the government believed that future inflation expectations could be altered via monetary targets and swept all doubts aside<sup>41</sup>.

In the first year of the MTFS, the targets set for  $M_3$  and PSBR were overshoot and the same was true for the year 1981/82. In 1982/83 both targets were met but only after an upwards revision. After exchange rate controls and the 'corset' had been abolished, the growth of  $M_3$  was dramatically inflated by the process of reintermediation<sup>42</sup>. Other factors, such as financial innovations, full adaptation of liability management, and the growth of building societies contributed to the acceleration in the growth of broad money. After the abolition of direct controls, the authorities were left with two instruments to control the money supply, short-term interest rates and debt management<sup>43</sup>. Short-term interest rates proved rather ineffective as an immediate control instrument on bank lending since the desired effect on  $M_3$  only became apparent after a time-lag of six months, as available evidence had shown. The demand for bank loans was the crucial factor which needed to be influenced in the course of  $M_3$  control. Fforde argued that

*"...with these uncertainties and time lags surrounding the course of bank lending, monetary control in the shorter term came to depend critically upon debt management;... , there were rather close limits to what could be achieved by this means. For one thing, the short-run predictability of the government's own borrowing needs was at that time very poor"*<sup>44</sup>.

In fact, sales of gilt-edged stocks, conducted by the Bank of England on behalf of the Treasury, made up the majority of the debt sales.

At the beginning of the second quarter of 1980, the British economy moved steeply into a recession, which led to sharp reductions in profit margins, a rapidly rising

<sup>41</sup> Fforde in (BEQB, June 1983)

<sup>42</sup> "Credit rationing and high inflation were major influences on household behaviour through the 1970s. It is likely that the direct monetary controls that were then applied impinged most heavily on bank lending to households." the Governor's Loughborough lecture (BEQB, December 1986, p. 502)

<sup>43</sup> Coleby in (BEQB, June 1983)

<sup>44</sup> Fforde in (BEQB, June 1983, p. 204)

unemployment rate, and consequently to a boost in social security spending, leading to the overshoots of PSBR target in the first years of the MTFS. The initially low rate of inflation started to accelerate again in 1979 and inflation peaked in May 1980 at a rate of 21.9 per cent. In the autumn of 1980, the growth of prices and nominal incomes slowed down again. Between 1979 and 1980, the exchange rate rose considerably due to high interest rates, a credible anti-inflation commitment by the Thatcher administration, and a strong surplus in the balance of payments, after the British oil fields in the North Sea had been fully developed. The Bank of England issued a paper on 12 March 1981 which introduced a number of changes to enhance the existing framework of monetary control. Greater emphasis was placed on open-market operations and to a lesser extent on discount window lending. The Bank was determined to allow market factors to have a greater effect than before on bill rates, the reserve asset ratio was to be abolished as soon as consultations with the banking sector about adequate holdings of liquid assets had been completed<sup>45</sup>. Despite the recession, the balance of payments remained in surplus and the conduct of fiscal policy stayed tight. After its peak in 1980, the rate of inflation fell gradually to under five per cent. By 1982, inflation was in a sustained downward trend but  $M_3$  was still overshooting (Figure 3.2<sup>46</sup>).

Monetary indicators, other than  $M_3$ <sup>47</sup>, suggest that the conduct of monetary policy was tight during the first years of the MTFS and that an even tighter policy would have only led to an exacerbation of the already severe recession. In the face of the large overshoot of  $M_3$  in the first year of the MTFS and the comparably better performance of narrow aggregates as indicators of the actual stance of monetary policy, commentators started to question once again the appropriateness of  $M_3$  as monetary target aggregate, which encouraged further academic study of this issue in order to find other less distorted monetary aggregates. In 1980, monetary base control

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<sup>45</sup> BEQB (March 1981)

<sup>46</sup> Artis/Lewis (1991, p. 74)

<sup>47</sup> The growth of the narrow aggregates  $M_1$  and  $M_0$  was much slower than the growth of  $M_3$ .

was intensively discussed and considered as an alternative to targets for broad money on the grounds that base money showed a close statistical relationship with inflation. The arguments in favour of such a control mechanism, however, did not prevail in the end. The authorities took the view that the situation necessitated a continuous interpretation of the performance of  $M_3$  in the light of other factors, such as the exchange rate, since the behaviour of the target aggregate alone did not seem to be giving a reliable signal<sup>48</sup>.

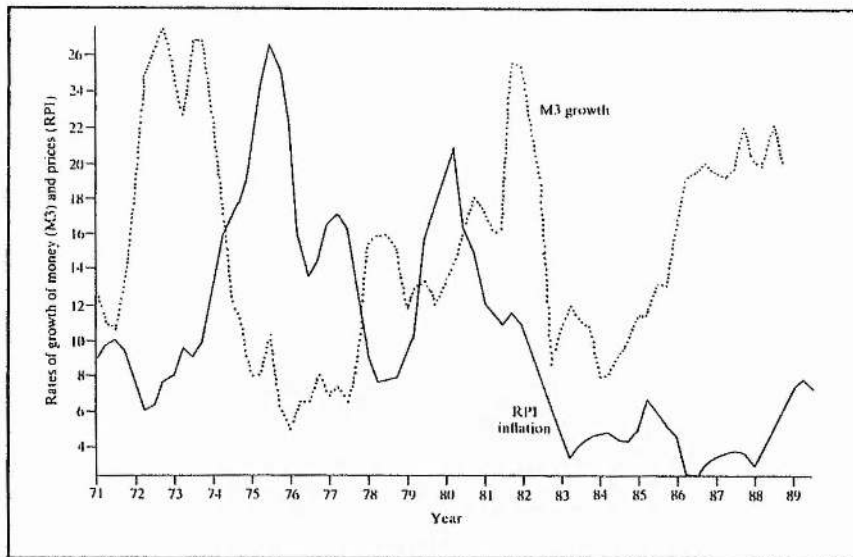


FIGURE 3.2

Since the authorities had attached such great importance to the MTFs as expression of their devotion to the defeat of inflation, the monetary overshoots were taken very seriously. Since 1980, the velocity of broad money ( $GDP/broad\ money$ ) had fallen by an average of 4 per cent a year, with  $M_3$  falling at an accelerating rate, whereas the velocity of  $M_0$  rose strongly. If a target is set for the growth of broad money and the velocity of circulation of this aggregate falls, it imposes a tighter squeeze on the economy. The statistical relationships between money and nominal incomes had already shown considerable fragility in the early 1970s in the face of strong supply

<sup>48</sup> J S Fforde (BEQB, June 1983) and Coleby (BEQB, June 1983)

shocks, most apparent in Anglo-Saxon countries<sup>49</sup>. After the second oil price shock in 1979, the pronounced changes in monetary policy in the United Kingdom made the fragility of this relationship even more apparent. The most significant breakdown of the previously established relationship occurred in those monetary aggregates which had been chosen as monetary targets<sup>50</sup>. Goodhart<sup>51</sup> argues "*that any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes*". Various explanations have been put forward to explain the instability of the relationship between the money stock and nominal income since 1980, which shall not be discussed here, since such a discussion would go beyond the scope of this paper. Despite the present instability, several authors<sup>52</sup> have argued, on grounds of empirical evidence, that the long-run demand-for-money function displays remarkable stability, with few outliers which require special explanation. The authorities themselves put forward various reasons to explain this fall in velocity, such as reintermediation after the abolition of the 'corset'. In fact, the process of disintermediation was quite substantial, with financial flows being re-routed away from the banks balance sheets, companies issuing bills and other companies or financial institutions were holding these bills instead of certificates of deposit. Another factor which was invoked by the authorities was the entry of the clearing banks into the mortgage market, which increased the competition between banks and building societies on assets and liability sides<sup>53</sup>.

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<sup>49</sup> Fair (1987, p. 475/476) compared the money demand functions of 27 countries and found considerable similarities across the OECD countries. With exception of Germany, instability in money demand was found in 13 of the 17 tested countries.

<sup>50</sup> Goodhart (1989, p. 99/100)

<sup>51</sup> Goodhart's Law: Goodhart (1984, p. 96)

<sup>52</sup> Artis/Lewis (1984) and Taylor (1987); Taylor estimated a stable demand function for  $\text{£M}_3$  for the UK (1964-1985) on quarterly basis and included an own rate of return on money in the equation in order to capture some effects of financial innovation. The results show no sign of a structural break in the function following the introduction of the CCC. In another equation, Taylor excludes the factor which describes the influence of financial innovation, whereby the estimated coefficient shifted by over three standard errors.

<sup>53</sup> Cobham (1988) and Cobham (unpublished)



Llewellyn et al.<sup>54</sup> argue that two sets of constraints dominated British monetary policy in the late 1970s and early 1980s; On the external side, the relationship between international capital movements, the exchange rate, and the domestic money supply. On the domestic side, the complex relationship between fiscal policy (measured by the budget deficit), the growth rate of the money supply, and the level and structure of interest rates.

### 3.3.3.2 1982-86

After inflation had fallen to a low figure, the government was increasingly urged to indicate the thrust of monetary policy, in the face of continued overshooting of the monetary targets and with other factors than the growth of monetary aggregates appearing to have some influences on monetary policy decisions. The overshoots in the early 1980s coupled with the authorities inability to explain the fall in velocity of broad money led to significant modifications in subsequent versions of the MTFS. Extensive studies were undertaken by the Bank of England and the Treasury to find less distorted and more reliable monetary indicators. Since the velocity of narrow money had proved more reliable during this period, its role was upgraded in the framework of the MTFS. Quoting Goodhart (1989, p. 306):

*"This erosion of confidence in their ability to interpret the signals given by their prior chosen main target and indicator, £M<sub>3</sub>, led the authorities to extend the range of monetary and other variables, including notably the exchange rate, that they would consult in assessing the stance of policy, and hence in deciding on how to vary interest rates".*

In March 1982, the authorities amended the policy laid down in the original version of the MTFS in 1980. The monetary targets set for £M<sub>3</sub> in the MTFS relating to 1982/83 and succeeding years were revised upwards. In the 1982/83 and 1983/84 MTFS common target ranges were set for a period of three years for £M<sub>3</sub>. The

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<sup>54</sup> Llewellyn et al. (1982, p. 23)



authorities introduced two additional measures,  $PSL_2$  (Private Sector Liquidity, second definition, an even broader aggregate than  $\text{£}M_3$ ), and  $M_1$ , for which the same target range was set as for  $\text{£}M_3$ . Although the authorities believed that  $\text{£}M_3$  was sending misleading signals regarding the monetary conditions, it was politically impossible to abandon  $\text{£}M_3$  as target aggregate. Nevertheless, the status of the monetary target for  $\text{£}M_3$  was downgraded in response to increasing doubts about its central significance. From 1982 onwards, the emphasis was on the 'illustrative' nature of the target aggregates which was accompanied by a growing emphasis on the exchange rate as indicator. Coleby<sup>55</sup> states in this context that, although the authorities' objective to counter inflation had remained unchanged, *"there has been a wide-ranging debate over almost every aspect of its aims and operations and there have been changes in the weights given to particular factors considered in formulating policy"*.

After the re-election of the Conservative government in June 1983, the Chancellor of the Exchequer initiated a review of the MTFS. The discussion centred once again on the choice of the target aggregates. The authorities, in the light of their previous experience with targets for broad money, started to consider narrow aggregates for targeting purposes. In the 1984/85 MTFS, separate target ranges<sup>56</sup> were set for  $M_0$  and  $\text{£}M_3$  and additional attention was paid to  $PSL_2$  and  $M_2$ . The velocity of  $M_0$  had been on a steady upward trend since 1955, suggesting a stable relationship between  $M_0$  and nominal expenditures<sup>57</sup>. Although  $\text{£}M_3$  was still considered important, the authorities took the view that it was more useful as a guide for 'funding policy' rather than as an indicator for the setting of short-term interest rates (Temperton, 1991). The authorities attached equal weight to both target aggregates in the assessment of the stance of monetary policy. In the 1985 budget, the role of the exchange rate was

<sup>55</sup> BEQB (June 1983, p. 215)

<sup>56</sup>  $M_0$ 's range was two percentage points lower than that for  $\text{£}M_3$ , reflecting historical differences in the trends in velocity of these two aggregates.

<sup>57</sup>  $M_0$  was regarded by the authorities 'as a useful indicator of monetary conditions'. BEQB (August 1992, p. 305)

significantly upgraded and exchange rate fluctuations became the indicator on which monetary conditions were judged. Furthermore, the authorities announced the publication of government's forecasts for nominal GDP alongside targets for the monetary aggregates<sup>58</sup>. In the 1985/86 MTFS, separate targets were set for  $M_0$  and  $\text{£}M_3$ , but the target range for  $\text{£}M_3$  was suspended in October 1985. In the 1986 budget, a target for  $\text{£}M_3$  was reinstated but only for 1986/87 and with a relatively high target range. By the end of 1986, the authorities were preparing to abandon monetary targets<sup>59</sup> and in the 1987 budget,  $\text{£}M_3$  was finally dropped<sup>60</sup> as target aggregate, which left  $M_0$  as the only aggregate targeted by the authorities. Cobham (1988) argues in his paper on the influence of financial innovations on monetary targeting, that the major wave of distortions and structural changes induced by financial innovations on the growth of monetary aggregates has passed. Although the financial markets will continue to produce new instruments, there is no reason to expect a further substantial increase in competition as a cause of financial innovations<sup>61</sup>. Therefore, "as far as the UK is concerned, ..., financial innovation implies a need not to abandon but to modify the practice of monetary targeting"<sup>62</sup>. A rather opposing opinion is held by Dow and Saville (1988), who stated that it has become evident that monetary targeting is no longer tenable. Table 3.3 shows the monetary targets set in the UK between 1976 and 1987 and the results achieved.

The corporate sector was still in a state of recovery from the severe recession in 1980/81 and the demand for mortgage finance in the personal sector grew rapidly<sup>63</sup>, reflected by a persistently high demand for bank loans. In the early 1980s, demand

<sup>58</sup> Forde (1982, p. 207) noted in this context that "Indicating an acceptable medium-term path for nominal GDP enables a greater emphasis to be placed on the favourable development of demand and output that could be accommodated within it."

<sup>59</sup> the Governor's Loughborough lecture (BEQB, December 1986)

<sup>60</sup> The authorities stated in the 1987 budget report that no new target for broad money was set because it remains too difficult to interpret the behaviour of  $\text{£}M_3$ .

<sup>61</sup> The official rationale for the abandonment of monetary targets in the UK has always stressed the problems caused by financial innovations.

<sup>62</sup> Cobham (1988, p. 263)

<sup>63</sup> Personal sector borrowing for house purchase grew at an average annual rate of 19.5% during the 1980s. BEQB (February 1995)

## Monetary Policy in the United Kingdom

for bank loans appeared to be highly interest inelastic<sup>64</sup>. In the first half of the 1980s, the policy of overfunding (Figure 3.3), which is the sale of government debt to the non-bank public exceeding that required to fund the PSBR, was a prominent feature of gilt-edged market management<sup>65</sup>.

<b>Monetary Targets, 1976 - 1987<sup>66</sup></b>			
<b>Period</b>	<b>Measure</b>	<b>Target Set</b>	<b>Outcome</b>
1976/77*	£M <sub>3</sub>	9-13	8.0
1977/78*	£M <sub>3</sub>	9-13	15.1
1978/79*	£M <sub>3</sub>	8-12	11.4
Oct. 1978/Oct. 1979	£M <sub>3</sub>	8-12	13.7
June 1979/Oct. 1980	£M <sub>3</sub>	7-11	17.2
1980/81**	£M <sub>3</sub>	7-11	19.4
1981/82**	£M <sub>3</sub>	6-10	12.8
1982/83**	M <sub>1</sub>	8-12	12.4
	£M <sub>3</sub>	8-12	11.2
	PSL <sub>2</sub>	8-12	11.6
1983/84**	M <sub>1</sub>	7-11	14.0
	£M <sub>3</sub>	7-11	9.5
	PSL <sub>2</sub>	7-11	12.6
1984/85**	M <sub>0</sub>	4-8	5.4
	£M <sub>3</sub>	6-10	11.9
1985/86	M <sub>0</sub>	3-7	3.4
	£M <sub>3</sub>	5-9	16.7
1986/87	M <sub>0</sub>	2-6	4.4
	£M <sub>3</sub>	11-15	19.0

**TABLE 3.3**

\* financial year  
 \*\* from February of one year until April of the next

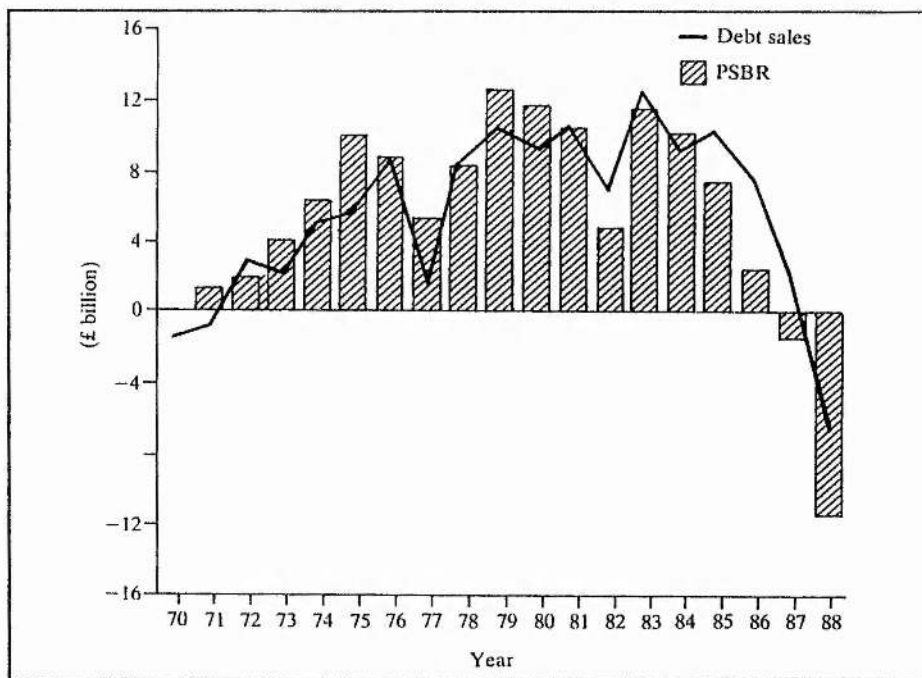
The pursuit of deliberate overfunding of the PSBR was the authorities' response to their previous experience with interest rates which had proved insufficient to control the broad money supply. The sales of more public debt than all of the PSBR had a contractionary impact on M<sub>3</sub>. However, such a policy was fraught with technical problems. The large payment flows from the banking sector to the government caused

<sup>64</sup> Goodhart (1989, p. 306)/ reasons are given in: Artis/Lewis (1991, p. 160/161)

<sup>65</sup> Artis/Lewis (1991, p. 185)

<sup>66</sup> source: Temperton (1991, p. 7)

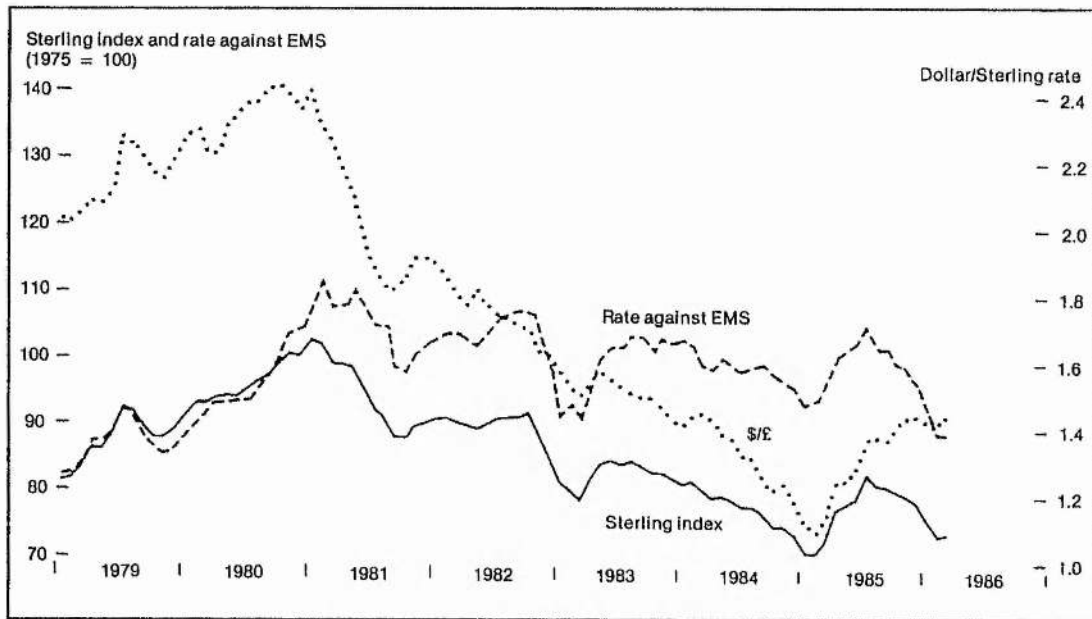
persistent cash shortages in the discount market, especially the sale of long-dated securities, which forced the authorities to counteract by engaging themselves consistently in the purchase of commercial bills in open-market operations to provide the banking sector with sufficient liquidity. This policy soon resulted in an excess holding of bills ('bill mountain')<sup>67</sup>. The policy of overfunding was contrary to the authorities' declared intention to give greater freedom to market forces in the determination of short-term interest rates, and was abandoned in October 1985<sup>68</sup>. The determination of interest rates became increasingly pragmatic and the authorities' attention shifted more towards exchange rate fluctuations. The sterling exchange rate fluctuated considerably during this period (Figure 3.4) and on many occasions interest rates were raised in the face of a sterling weakness in the foreign exchange market.



**FIGURE 3.3: Funding the PSBR**  
(source: Artis/Lewis, 1991, p. 186)

<sup>67</sup> By 1985 the Bank of England was holding commercial bills in excess of £15 million. Gilbody (1988, p. 279)

<sup>68</sup> In fact, the growth of £M3 was more controlled by the mean of overfunding than by interest rate changes during 1982-85.



**FIGURE 3.4: Sterling Exchange Rates**  
(source: Driffill, 1987, p. 27)

In the 1984 budget, the government spelled out as its primary policy objective the achievement of stable prices with lower interest rates. The post-1983 UK inflation record, however, suggests that the government was not particularly determined to bring inflation further down, after it had reached an average rate of 5 per cent. In the light of a declining level of world-inflation and a more stable macroeconomic environment, the conduct of monetary policy seems to have been rather lax after 1983. Nevertheless, whenever the RPI (retail price index) tended to rise above 5 per cent, due to inflationary pressures, the authorities counteracted by raising short-term interest rates. The authorities' behaviour indicates a switch in monetary policy to supporting economic recovery rather than stable prices, after inflation had been brought down to 5 per cent<sup>69</sup>.

The process of disinflation in Britain followed a world-wide trend, which can, according to an OECD study on the disinflation in the 1980s<sup>70</sup>, be mainly attributed to the restrictive monetary policies adopted in OECD countries. The Conservative

<sup>69</sup> Brown (1990, p. 108/9)

<sup>70</sup> (Coe et al., 1988, p. 113) cited in Artis/Lewis (1991, p. 52)

government under Thatcher leadership uncompromisingly pursued the articulated policy of monetary tightening to curb inflation in the first half of the 1980s. The findings of an analysis on the credibility of the Thatcher regime carried out by Brociner (1990), show that the change of government in 1979, the re-definition of the role and emphasis of British monetary policy, and the subsequent monetary tightening reduced inflationary expectations and was, therefore, credible. The broad international consensus about the necessity to pursue counter-inflationary monetary policies at the end of the 1970s made the adoption of such policies by the Thatcher government somewhat easier. Although the government succeeded in reducing inflation, according to its precommitment, the observations by Brown (1990, p. 108/9) seem to suggest that an even lower inflation rate would have been feasible at the time. The disinflation in the early 1980s in the UK and the findings by Brociner demonstrate that an anti-inflationary commitment can be credible even in a discretionary monetary regime, provided the policy makers do not renege on the precommitment. The experience, however, shows that such commitments are mostly short-lived and are often sacrificed in the moment, when economic conditions become less favourable.

### **3.4 British Monetary Policy post-1986**

#### **3.4.1 Searching for a New 'Anchor'**

In the second half of the 1980s, the PSBR moved into surplus which was partly due to the flow of payments to the government as a result of the privatisation of public sector corporations. In the second half of the 1980s occurred a shift in attention, especially in medium-sized countries, away from monetary aggregates whose past performance had cast doubts on their predictability, towards stabilising the exchange rate since past misalignments in the foreign exchange market had led to increasing concern by



the authorities<sup>71</sup>. Furthermore, in the case of the United Kingdom, the exchange rate attracted growing attention in the light of a possible entry into the ERM, after broad money targets had been abolished. High interest rates in the United States and a strong appreciation of the dollar increasingly biased interests rates in the UK by forcing the authorities to maintain them at a higher level than they would have done otherwise. In September 1985 in the Plaza Agreement, the G5 resumed an active co-ordination effort to reduce the pressure by driving down the dollar. Soon after, the dollar started to depreciate strongly and concern grew about the consequences of a massive depreciation. In February 1987, the G7 agreed in the Louvre Accord to stabilise the dollar by installing a loose system of 'reference ranges' within which the currencies were to be maintained. The specific guidelines set out in the Accord for the monetary policy of the participants, however, did not require changes in existing UK policy. At the end of 1987, interest rates were cut in response to the collapse of the world stock markets in October. In March 1987, an informal arrangement was made to constrain sterling within a narrow trading range with respect to the Deutschemark, which was just below 3 DM/£. Whenever the pound tended to rise above this range, the authorities intervened in the foreign exchange market or reduced interest rates. This coincided with a period of upward pressure on sterling and excessive domestic demand, which in the face of growing inflationary pressures, made it increasingly difficult to retain the low level of interest rates necessary to maintain the 'peg' to the DM. Consequently, this policy was abandoned in March 1988. British monetary policy between 1985-87 can be described as having been significantly influenced by an effort to narrow the range of sterling fluctuations against the DM in anticipation of a possible UK membership in the EMS *"and/or in an effort to control inflationary expectations by drawing on investor confidence in the DM"*<sup>72</sup>.

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<sup>71</sup> The strong appreciation of sterling was viewed by the authorities as a major factor behind the depth of the UK recession.

<sup>72</sup> Poole (1992, pp. 76/77)



During the 1985-87 period, the growth of  $M_3$  was extremely high and 1989 experienced a resurgence of inflation. In the budgets from 1987/88 to 1992/93, no target ranges for broad money aggregates were set and the ranges set for  $M_0$  had merely an 'illustrative' character<sup>73</sup>. However, in the 1988 budget report, the authorities stated that  $M_0$  had proved a reliable indicator of monetary conditions<sup>74</sup>. Furthermore, although no broad monetary target had been set, the authorities continued to take broad money developments into account for the assessment of the stance of monetary policy. Goodhart<sup>75</sup> argued that, although the authorities maintained  $M_0$  as a target aggregate, there has been no case where the development of this indicator was primarily responsible for a policy instrument shift, apart from a few occasions where  $M_0$  was considered before policy measures were taken. In 1990, the British economy went into a recession initially caused by a sharp fall in domestic demand<sup>76</sup>. The RPI peaked at over 10 per cent in 1990 and then declined gradually, reaching under four per cent in the first quarter of 1992.

On the 6 October 1990, the United Kingdom entered the Exchange Rate Mechanism. ERM membership was viewed by the authorities as device to create credibility for British monetary policy. The Governor stated in November 1992 that

*"it certainly offered a very visible sign of our commitment to price stability - a sign that could be understood, and which would thus influence favourably expectations in the private sector"*<sup>77</sup>.

The precondition for sterling membership had always been stressed by the authorities as being twofold; The convergence of the UK inflation rate to an average EMS

<sup>73</sup>  $M_0$  is in the short-term exclusively demand-determined and has therefore no apparent short-term causal role. (BEQB, February 1995)

<sup>74</sup> Goodhart (1992, p. 143) remarks that *"indeed we have had some monetary targetry ever since 1985, in the form of  $M_0$ , though this, I believe, has mainly represented a fig leaf to disguise the actual fact of the abandonment of monetary targetry, a fig leaf which enabled the Chancellor to say that he never gave up monetary targetry"*.

<sup>75</sup> Goodhart (1992)

<sup>76</sup> Domestic demand fell between the second quarters of 1990 and 1991 by 4.7%. (BEQB, August 1992)

<sup>77</sup> inaugural LSE Bank of England lecture (BEQB, November 1992, p. 447)

country rate of inflation and the chance for the UK authorities to observe the working of the EMS after exchange controls had been removed. A satisfactory fulfilment of these conditions was perceived as essential in order to secure a 'smooth entry'. However, prior to sterling's entry, the rate of inflation did not meet the first precondition. Although in the period 1987-90 exchange rate controls were still in force, the ERM appeared to rely to a lesser extent on the use of this instrument, which showed the system's ability to function successfully even without these controls.

The UK suspended its membership on the 16 September 1992, after turbulent market conditions had necessitated a heavy official purchase of Sterling. The Governor pointed out that, due to the increasing divergence between the domestic policy needs in Germany and elsewhere in Europe, the constraints of the system forced Britain into unduly disinflation, which involved the risk that the UK economy would suffer unnecessary damage<sup>78</sup>. Britain's exit from the ERM resulted in a loss of counter-inflationary credibility, although as King (1993) argued, this loss was small.

### 3.4.2 Alternative Proposals and a New Strategy

After the suspension of sterling's membership in the ERM, a new framework for anti-inflationary credibility of monetary policy was urgently needed. A new strategy was launched in 1993, the government's commitment to price stability was embodied in an explicit inflation target<sup>79</sup>. The Chancellor announced a target range for annual inflation of 1-4 per cent, defined in terms of underlying inflation - RPIX (RPI excluding mortgage interest payments)<sup>80</sup> and said that, by the end of this Parliament, the aim is to achieve an inflation rate which is in the lower part of this range. Beside

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<sup>78</sup> BEQB (1992, p. 447)

<sup>79</sup> Inflation Report, February 1993

<sup>80</sup> Crockett (1994) argues that over time it would be desirable to use a more sophisticated measure of internally generated price pressures.

the publication of the inflation target, institutional changes had to be introduced to bolster the credibility of the commitment to low inflation. The Bank of England, therefore, was committed to provide a regular (quarterly) and objective analysis of inflationary trends and pressures (Inflation Report) to monitor the progress being made towards the Government's objective of price stability (since February 1993). The Governor stressed in his Mansion House speech in November 1992, the importance of such steps in order to make monetary policy more open and accountable to both Parliament and the public<sup>81</sup>. Although in the 1993/94 MTFS, medium-term monitoring ranges were set for  $M_4$  and  $M_0$ , the centrepiece of monetary policy became the inflation target. Within the framework of this new strategy, monetary aggregates are used as information variables rather than intermediate targets. Moreover, the government committed itself to greater openness concerning the information used to assess the appropriate stance of monetary policy to meet the target and to explain the reasons for any changes in that stance. The Treasury was committed to the publication of a regular monthly assessment of the underlying monetary conditions (since December 1992). An additional commitment was made to issue detailed press notices whenever interest rates are changed (since October 1992). Furthermore, the Chancellor of the Exchequer announced on April 13, 1994 that minutes of the monthly meetings between the Chancellor and the Governor will be published in future, which shall contribute to greater transparency of monetary policy. The role of fiscal policy in supporting monetary policy was emphasised within the new monetary strategy of the government.

From the UK's exit from the ERM onwards, sterling depreciated strongly. The rate of inflation moved well under four percentage points but started to rise again at the end of 1994 (Figure 3.5<sup>82</sup>).

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<sup>81</sup> The Governor (1992) argued that, although 'these changes may appear to be a small step for Britain, they are a giant leap for the authorities'.

<sup>82</sup> Financial Times (27/07/95)

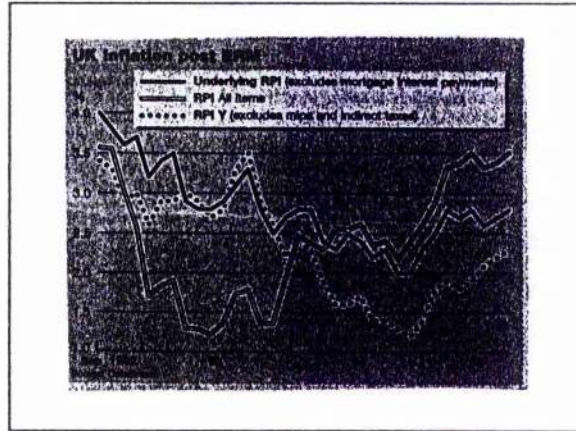


FIGURE 3.5

In June 1995, the government updated its inflation target and announced that it will continue to target RPIX inflation at a rate of 2.5 per cent or less, beyond the end of the present Parliament. Representatives of countries with an inflation target as the centrepiece of their monetary policy framework, judged, at a recent conference organised by the Bank of England, that past experience had encouraged the targeting of inflation since some of the countries had already succeeded in reducing substantially their domestic level of inflation. It is hoped by the authorities to reduce uncertainty and generate credibility with the adoption of a official target, provided that to hit the target implies a low rate of inflation<sup>83</sup>.

The Bank of England recommended in its quarterly report, published 2 August 1995, that interest rates should be revised to counteract inflationary pressures in order to ensure that the government's inflation target is met. Nevertheless, commentators at the time expected the government to respond in a rather reluctant manner to the warning by the Bank, despite the apparent threat to the inflation target. The Bank of England noted that the financial markets were not convinced that the government is serious about sticking to its inflation target, which was manifested by a sharp increase in long-term inflation expectations since May 1995<sup>84</sup>. Already the publication of the

<sup>83</sup> King (BEQB, February 1995)

<sup>84</sup> Financial Times (03/08/95, p. 1)



minutes of the meeting of June 7 between Kenneth Clark and Eddie George had shown that the Chancellor 'rejected the view that policy should be tightened simply because the financial markets expected it to be' and re-emphasised that the decisions on interest rates were to be solely based on the economic evidence on a month-by-month basis<sup>85</sup>. The Financial Times remarked in this context on 20 July 1995 that *"while the judgement on whether or not interest rates should be raised may be finely balanced, the risks are not"*. As chapter one tried to demonstrate, expectations are a crucial factor in monetary policy and policy makers should, therefore, take these expectations into account, whenever policy decisions are made. This is of particular relevance for the conduct of British monetary policy at the moment, since the credibility of the UK's new policy regime is still rather fragile. Although, at the end of 1995 the rate of inflation was within the 1-4 per cent, meeting the ambitious goal of bringing inflation into the lower target range by end of this Parliament, after excluding mortgage interest payments, will, however, require more enthusiasm on the side of the government and seems at the moment rather unlikely.

Recently, proposals have been put forward, in a paper by an independent panel of economists, to give a new mandate to the Bank of England by making it more independent, in the hope of generating greater credibility and accountability of monetary policy. It is argued that price stability should be the statutory objective of the Bank of England and the Bank should, therefore, be independent of government directives in order to secure that the primary monetary policy objective of price stability is met. Provisions, however, should be made to allow a temporary reversion of monetary policy to the government in an emergency. The government should only be able to overrule the Bank and to resume the control over monetary policy when it lays before the Parliament a statutory instrument to suspend for a period of six months the Bank's primary objective<sup>86</sup>.

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<sup>85</sup> Financial Times (20/07/95)

<sup>86</sup> Roll [ed.] (1993)

At this present moment, the government still exercises full discretion over the thrust of monetary policy in the United Kingdom and no actions have been undertaken to enhance the independence of the Bank of England so far. Nevertheless, the government has committed itself to a precise inflation target and the future will show to what extent the low inflation objective is indeed the overriding constraint on the conduct of monetary policy in the UK.

### 3.5 Concluding Remarks

The conduct of monetary policy in the United Kingdom has been marked by various changes over the past decades both in its objectives and its means. The dependence of the Bank of England on the government had, at times, decisive impact on policy decisions, since it enabled the authorities to use monetary policy for the pursuit of objectives other than price stability. The negative effects of Keynesian-style demand policies of the 1970s, directed at a high level of employment, were particularly pronounced in the United Kingdom. The various devices employed over the years to embed the counter-inflationary commitment into some credible framework, turned often out short-lived. Cairncross remarks to this point that

*"the record suggests that when there has been disagreement over monetary policy, the Bank of England and the Treasury are, as likely as not, on the same side of the argument. This may be true even of the Chancellor and the Governor. The Prime Minister has the last word and Prime Ministers usually have strong views which they do not lightly abandon"*<sup>87</sup>.

Even in the absence of an independent monetary authority, it is still possible to build a reputation, provided monetary policy is credibly committed to low inflation and consistently conducted in the light of this objective. However, the UK's monetary history also shows that optimism should be expressed rather cautiously in such cases, since discretion has too often prevailed at the end, despite an official precommitment to

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<sup>87</sup> Cairncross (1988, p. 71)

price stability and the self-imposition of constraints to make such commitments more credible. As M. King remarked, *"there is no doubt that the most effective way to obtain credibility is to build up a track record of low inflation"*<sup>88</sup>, which has been rather poor in the UK over more than two decades<sup>89</sup>. The new strategy of the authorities is directed at making the conduct of monetary policy more accountable and the commitment to low inflation more credible. However, for the future one remains sceptical; Whether the new monetary policy framework in the United Kingdom will be more binding for the policy makers. The issue of whether the Bank of England should be made independent of the government will with certainty rank high on the political-economic agenda in the next years. The authorities' ability to generate sufficient credibility for their present strategy will determine how strenuously the former alternative will be pursued and advocated in the general debate.

The record of British monetary policy, especially since 1979, has been marked by a continuous search for credibility of the authorities' low inflation commitment. In the face of this evidence, one could argue that there has always been a case for an independent Bank of England.

*"Just as the Bank of England provided a model when the Reserve Bank of New Zealand was established in 1934, there is now a clear case for making the Reserve Bank of New Zealand a model for a reformed Bank of England"*<sup>90</sup>.

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<sup>88</sup> King (1994, p. 123)

<sup>89</sup> The results of a study by Batchelor/Orr (1991) suggest that factors such as, the political party in government, the proximity of elections, and, under fixed exchange rates, the rate of inflation itself, determined significantly the policy credibility in the UK. However, the government's initiatives to increase credibility, through incomes policies and monetary targets, did not succeed in reducing uncertainty.

<sup>90</sup> Wood et al. (1993, p. 27)



# CHAPTER IV

## The Conduct of Monetary Policy in the Federal Republic of Germany: An Assessment

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### 4.1 Introduction

German history, at the beginning of this century, is marked by the appearance of two runaway inflations. In the period between the end of the First World War, through the first years of the Weimaer Republic, until November 1923, Germany experienced unprecedented inflation, accompanied by a dramatic loss of public confidence in governmental institutions. After a period of relative economic stability, achieved by the Rentenmark reform of November 1923, Germany went into depression like the rest of the industrialised world. The hyperinflation of 1923 with consumer prices rising two billion-fold and the resulting deep economic and social consequences are generally regarded as the main reason for the political failure of the First Republic. There are countless examples where discretionary conduct of monetary policy resulted in an undesirable and sometimes even disastrous outcome, as in the case of Germany, leading twice in a century to a complete loss of monetary wealth.

After the end of the Second World War, at the insistence of the British military authorities, the Bank Deutscher Länder (BdL) was founded to co-ordinate the actions of the Land Central Banks which had been created in the zone of each Ally. The structure and powers of the newly established institution had a close resemblance to today's Bundesbank. In 1950, after the Federal Republic came into existence, the BdL obtained its temporary status as the central bank of Germany. In the first draft of the legislation, Germany's political leadership favoured a rather decentralised institution to allow governmental representation and a certain degree of influence on monetary

matters, and put proposals forward concerning the transfer of banking authority from the Allied Banking Commission to the government. The Central Bank Council of the BdL had strong objections against this proposal, resulting in a fierce debate whether the new central bank should be independent of government directives. In the years of its existence, the Bank Deutscher Länder set a new standard for monetary management by maintaining relative price stability during a period of high growth.

The German Bundesbank was established by the Bundesbank Act in 1957 as an independent central bank<sup>1</sup> with a constitutional responsibility to protect the internal value of the Deutschemark. The inclusion of the mandate to safeguard price stability met with wide consensus in German society. Since then, the refusal to compromise on inflation has been a distinctive element of Bundesbank policy despite changing economic concepts of thought. Nevertheless, the Bank's room for manoeuvre to achieve its prime objective of price stability, has often been limited over the years, primarily by external constraints. Germany's membership in the fixed exchange rate system of Bretton Woods and later, after the Deutschemark had involuntarily assumed the role of an 'anchor' currency in the European Monetary System, challenged German monetary management. The Bundesbank faced the difficult task of balancing domestic interests and the requirement to maintain international stability after the Deutschemark had become one of the most important reserve currencies after the US dollar. The government's exchange rate policy, for which it is legally in charge in Germany, made it more difficult for the Bundesbank to pursue successfully the objective of price stability on various occasions.

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<sup>1</sup> A restriction in independence lies in the appointment procedure since the Bundesbank President, the Deputy President, and the members of the directorate are appointed by the Bundestag's President (speaker of the Bundestag) on the recommendation of the Federal Government, although the government is obliged to consult the Central Bank Council (CBC) before giving its recommendations to the Bundestag's President. The Presidents of the Land Central Banks are appointed by the Bundestag's President on the recommendation of the Bundesrat (Upper House of the German Parliament) after a prior hearing of the CBC and on account of a recommendation of the regional authority.

It is important to note in this context, that in the 1960s and 1970s the "Central Bank Council forwarded a number of negative opinions on the nominees of the state governments (Land Central Banks), but never succeeded in stopping an appointment". (Holtfrerich, 1988, p. 143)

In 1974, the Bundesbank was the first central bank to adopt monetary targets by setting an annual target for the growth of the Central Bank Money Stock (CBMS). This was viewed by Bundesbank officials, in the face of apparent dangers threatening monetary stability, as an important step in restraining price expectations in the economy. The practice of monetary targeting has been retained ever since, although the targeted aggregate changed to  $M_3$  in 1987. In 1990, the Bundesbank faced its greatest challenge so far with the German unification. Since its establishment in 1957, the Bundesbank has successfully pursued an anti-inflationary monetary policy, based on its constitutional task of maintaining price stability and its independent status, which earned it the reputation of an accountable and credible monetary 'custodian'.

This chapter reviews German monetary policy over the past three decades and is divided into four main parts; Part one provides an insight in the Bundesbank's monetary management under the fixed exchange rate constraint of the Bretton Woods system. Part two discusses the concept of monetary targeting in Germany and reviews the setting of monetary targets under flexible exchange rates. The third part is dedicated to a detailed assessment of Bundesbank policy in the 1980s under the EMS constraint. Part four outlines the major issues of the German currency union in 1990 and the problems of German monetary policy in the 1990s.

## **4.2 German Monetary Policy under the Fixed Exchange Rate System of Bretton Woods**

Within the framework of the fixed exchange rate system of Bretton Woods, the Bundesbank was obliged to intervene in the foreign exchange market whenever the exchange rate reached the official intervention points to prevent the intervention points from being passed. Favourable international conditions had enabled the Bundesbank to pursue a rather expansionary monetary policy until mid-1959 to

promote economic growth and employment and to achieve equilibrium in the balance of payments. In order to keep the rate of inflation under control, the Bundesbank tightened monetary policy in autumn 1959, leading to a massive inflow of foreign capital which increased the money supply dramatically. The government, who is in charge of the exchange rate policy, found itself with a conflict of interests between defending the external value of the currency to maintain the relative advantage of Germany's export industry due to an undervalued Deutschemark and counteracting increasing inflationary pressures. After having opposed the first revaluation in October 1960, the government finally decided for a modest revaluation in March 1961, after the monetary instruments at the Bundesbank's disposal had failed to counteract imported inflation. Bundesbank officials<sup>2</sup>, who had been in strong accord with the government's original refusal to revalue, criticised publicly the government's decision for revaluation which brought the then Bundesbank President to remark that 'one shouldn't operate on a healthy currency [the D-mark] in order to cure a sick one [the US dollar]'<sup>3</sup>. Nevertheless, after revaluation, the Central Bank Council (the supreme body of the Bundesbank) adopted a more supportive position concerning the government's decision for a new exchange rate parity<sup>4</sup>. However, the revaluation did not lead to the intended slowdown of the economic boom and failed to make monetary policy effective again. The Bundesbank was forced to pursue a policy of low interest rates until 1965, despite economic expansion and rising inflation. This episode shows the potential for disagreement about the appropriate action in the exchange rate policy arising from the split of monetary and exchange rate jurisdiction between the central bank and the government.

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<sup>2</sup> Karl Blessing, who was at the time the Bundesbank President, fully supported the government's decision not to revalue in October 1960.

<sup>3</sup> quoted in Kennedy (1991, p. 39)

<sup>4</sup> Economics Minister Erhard stated, after the Central Bank Council meeting in which the Council had approved the new parity, that in the case of continuous opposition by the Bundesbank, the government would have exercised its power to suspend (veto) the Bundesbank's decision of reducing the minimum reserves that had just taken place. (Kennedy, 1991, p. 40) The government's power of veto, however, is limited to a fortnight and has never been exercised, but serves as an effective threat in a case of strong disagreement.

The 1960s were marked by substantial economic growth, high employment, and relatively stable prices. In the face of increasing inflationary pressures, the Bundesbank started to tighten monetary policy in summer 1964, reinforcing it in 1965 when budgetary relaxation contributed to overheating of the economy. 1965 was a year of great internal and external imbalances with the biggest current account deficit which had been so far recorded in the Federal Republic, a diminishing growth rate of the labour force, a steep rise in consumer prices, and rising public expenditures. The conflict between economic and monetary policy lasted until spring 1966 and was finally resolved in favour of monetary interests as the government agreed on a restrictive budget. The fixed exchange rate had prevented the effective use of contractionary measures at an earlier stage to counteract the increasing inflationary pressures. After the contractionary monetary measures displayed price-stabilising effects and the public authorities had cut their investment expenditures significantly, inflationary pressures were largely offset, but recessionary tendencies had gained significance and Germany went into the first post-war recession. In the mid-1960s, monetary policy proved more effective in restraining demand than it had been on other occasions in the post-war period. At the end of 1966, the authorities felt that the stabilisation endeavours had gone too far and decided, therefore, to ease the tight monetary stance to promote economic recovery. In early 1967, the government adopted an expansionary budget approach to stimulate recovery<sup>5</sup>. In autumn 1967, an economic upturn became finally apparent but the expansionary policies had led to the re-emergence of inflationary pressures.

In 1967, the government passed the Stability and Growth Law (SGL, Stabilitäts- und Wachstumsgesetz) which was intended to provide additional policy instruments to foster economic growth. The belief in the instability of the private sector was behind the passing of the SGL. The main emphasis was placed on fiscal policy and political

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<sup>5</sup> two special investment programmes were launched by the government in the course of 1967, involving more than DM 5.5 billion



decision-makers were bound in their economic policy to the fulfilment of the general macroeconomic goals of a social market economy. This law provided the government with a plausible justification for interventions in the business cycle. Article 1 defined as the four macroeconomic goals; (1) stability of the price level, (2) full employment, (3) a steady and reasonable growth, and (4) foreign trade equilibrium - 'the magic square'<sup>6</sup>. The link between the goals of the Stability and Growth Law and the Bundesbank Act arises from the Bundesbank's obligation to support the general economic policy of the federal government (article 12, Bundesbank Act). Article 18 of the SGL regulated the setting up of a Council of Economic Advisors, the 'Five Wise Men', which was established to advise the government in economic matters and to produce an annual report about the state of the German economy. Despite the fact that the annual publication of the report receives considerable attention from the government as well as from abroad, the Council's role is purely that of an advisor since it is not vested with sanctions in order to initiate and enforce necessary policy changes. In January 1968, the government submitted its annual economic report, which was revised in January 1969, to the Parliament, containing medium-term economic aims for the period 1968-1973. The definition of the aims was considered optimal and reflected directly the goals embodied in the Stability and Growth Law.

- (1) Full employment (0.8 of the labour force) - implying an average unemployment rate of 1.0 during the target period.
- (2) Price stability (rise in GDP deflator not exceeding 1 per cent) - implying an average annual increase in the GDP deflator of 1.8 per cent.
- (3) Foreign trade equilibrium - a surplus on the balance of goods and services on a national accounts basis of 1.5 per cent of GDP, offset by transfer payments and long-term capital exports.
- (4) Steady and reasonable economic growth - annual GDP increase of 4 per cent in volume<sup>7</sup>.

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<sup>6</sup> The term 'magic square' refers to the apparent conflict between these goals, since some of them can only be achieved at the expense of others. In the SGL, however, these goals were considered equally important and simultaneously achievable.

<sup>7</sup> OECD Economic Survey (1969, p. 35)



After the enactment of the Stability and Growth Law, an intense discussion about the Bundesbank's autonomy into the 1970s dominated the political debate in Germany. The Social Democrats strongly favoured a change in the Bundesbank's status. However, these ideas failed to find a majority and ultimately did not prevail.

During the period from 1966 to 1968, the German economy experienced a major expansion, marked by a pronounced growth of GDP, a substantial capacity growth in the total economy, a declining rate of unemployment, and a surplus in balance of trade of more than \$5 billion in 1967 and 1968. In 1969, the economic stance remained expansionary, real GDP grew by 8 per cent and capacity utilisation rose steeply<sup>8</sup>, although growth started to slow down in the course of the year. In the same year, Germany became the world's largest exporter of long-term capital at \$5.9 billion, which consisted almost entirely of private savings. After the situation deteriorated, the Bundesbank used its limited room for manoeuvre in March 1969, by changing the minimum reserve requirements to reduce the high liquidity balances of the banks caused by a massive speculative inflow of foreign capital, awaiting revaluation. The government enforced restrictive budgetary measures after economic indicators had suggested a likely excessive rise in demand. After the restrictive fiscal and monetary measures employed had proved largely self-defeating, attracting large speculative inflows from abroad, the Bundesbank pleaded for a revaluation of the Mark. The government, however, refused revaluation in May 1969, but was split over this issue, which came to affect directly the general election campaign. The Deutschemark was finally revalued in September at 9.3 per cent, generating an outflow of speculative funds. The revaluation and the Bundesbank's restrictive monetary policy coupled with budgetary restraints tightened the monetary stance. Although the applied measures dampened the growth of exports and weakened the boom in private investment, demand, however, remained rather high and put severe

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<sup>8</sup> At the end of 1969, 1.6 million foreign workers (mainly from Turkey) were employed in Germany.

pressures on resources<sup>9</sup>. Despite restrictive monetary and fiscal measures, prices continued to rise fast, reinforced by high wage settlements. In autumn 1969, wage settlements became increasingly aggressive, leading to a 'wage explosion' in 1970. The government perceived its scope for action as rather limited in the face of the oncoming general elections. In early 1970, it became increasingly clear that the impact of the revaluation was not strong enough to offset inflationary pressures. The Bundesbank, therefore, took additional measures to tighten the monetary stance even further and introduced incremental minimum reserve requirements on banks' foreign liabilities. Although the restrictive measures applied showed the desired effects, declining international interest rates urged the Bundesbank to adapt its policy instruments accordingly. The Bundesbank reaction to the international requirement came somewhat delayed since the authorities found no justification for an immediate relaxation of monetary conditions on domestic grounds. The Bundesbank's monetary policy was, according to the OECD Economic Survey in 1971, apart from the revaluation in 1969, *"the most effective policy variable in stemming domestic inflation in 1970, although its impact was severely limited by external factors"*.

In May 1971, the government allowed the Deutschemark to float in order to ease inflationary pressures and restore the Bundesbank's control over the monetary aggregates. This step was also taken in the hope that revaluation expectations would have a restraining influence on prices and wages. However, actual developments were somewhat different from the authorities' expectations. The movement of the \$/DM was very erratic due to changing expectations in regard of a Deutschemark revaluation. After the US government had eased up considerably on its credit policies and the international monetary situation deteriorated, the Bundesbank engaged itself increasingly in supporting the weakened US dollar to prevent an excessive

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<sup>9</sup> The industrial capacity utilisation averaged 93 per cent in 1970 despite an continued increase in foreign workers. OECD Economic Survey (1971)

appreciation of the Deutschemark<sup>10</sup>. In December 1971, the Group of Ten agreed (Smithsonian agreement) on new bilateral parities relative to the dollar, a devaluation of the US dollar relative to gold, and the installation of new fluctuation margins around the new dollar parities of 2.25 per cent on either side<sup>11</sup>. In the course of the currency realignment, the Deutschemark appreciated vis-à-vis the other currencies by a rate of 7.5 per cent, which did not eliminate the inflationary pressures to the extent that was expected. The Bundesbank and the government, therefore, agreed on additional restrictive measures to offset the expansionary effects of speculative capital import on the money supply. The decision about the appropriate measure triggered a conflict between the two sides. The Bundesbank favoured a license system for the buying of German bonds by foreigners, while the government preferred an increase in the 'Bardepot' (percentage of foreign credit to be held interest free with the Bundesbank). The application of the latter instrument is at the discretion of the government, while the Bundesbank decides on the percentage of the Bardepot. At the end, the Bundesbank lost to Bonn's officials and applied the new instrument with a 40-percent rate<sup>12</sup>. In April 1972, the central banks of Belgium, Germany, France, Italy, Luxembourg, and the Netherlands signed an agreement in Basle (the 'snake in the tunnel' arrangement), designed to limit the exchange rate fluctuations among the currencies of the signatories by agreeing to narrower bilateral fluctuation margins of  $\pm 1.125$  per cent. In June 1972, a Sterling crisis led to a renewed massive speculative inflow of foreign capital and the Bundesbank succeeded, on this occasion, in convincing the government to apply the license system<sup>13</sup>. This course of events prompted the publication of the Bundesbank's interpretation of the Bundesbank Act, with special regard to its relationship to the government and its autonomy.

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<sup>10</sup> Between January 1970 and May 1971, the Bundesbank purchased, bound by the intervention obligation, more than US\$ 11 billion, resulting in a stock of foreign currency reserves of almost DM 69 billion. (Nölling, 1993, p. 46)

<sup>11</sup> The agreement tripled the fluctuation margin vis-à-vis the dollar, which gave strong incentives to the creation of a tighter intra-EC mechanism in order to restrict exchange rate fluctuations. (Gros/Thygesen, 1992, p. 16)

<sup>12</sup> The instrument fell out of use in 1974, but the government can reactivate it any time. (Holtfrerich, 1988, p. 147)

<sup>13</sup> Article 13, para. 1 obliges the Bundesbank to advise the government in currency matters.

In the early 1970s, an attempt was made to extend the Bundesbank's catalogue of monetary instruments, reaching the stage of a parliamentary bill. The government, under the leadership of the Social Democrats, proposed the introduction of a minimum reserve requirement on the banks' assets in addition to those on the banks' obligations. The government insisted that the use of this instrument by the Bundesbank would require government approval. The Christian Democrats and the Bundesbank strongly objected against such a 'two-key provision', leading to the dropping of the bill<sup>14</sup>.

Starting in the fourth quarter of 1972, the industrialised world experienced a massive economic upswing accompanied by a sharp acceleration of the rate of inflation which prompted in many countries the introduction of restrictive measures to bring the development of prices under control. The rise in world food and raw material prices and the first oil crisis aggravated the situation dramatically and complicated the necessary stabilisation policies significantly. Germany was more successful than other countries in coping with the external and internal effects of the oil crisis. As the oil crisis hit the world economy, German domestic demand had already started to slow down, coupled with a deceleration of the pronounced price increases from the beginning of the 1970s. A relatively large export volume and a strong foreign balance helped to maintain high employment and industrial capacity utilisation. In March 1973, the Deutschemark was floated jointly with the currencies of the other five members of the European Community against the US dollar. At the time, it was believed that it would be possible to return to pegged exchange rates, but the oil crisis and its severe economic consequences proved insurmountable obstacles. The transition to floating exchange rates removed the strong external constraint which the Bretton Woods system had imposed on German monetary policy and what had, in the past, often severely biased the pursuit of domestic price stability<sup>15</sup>. The end of

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<sup>14</sup> Holtfrerich (1988, p. 149)

<sup>15</sup> The former Bundesbank President Otmar Emminger wrote: *"Since the mid-1950s, German stabilisation policy has repeatedly been undermined by influences originating abroad. In no other*

Bretton Woods enabled the Bundesbank to largely regain control over the money supply and corrected the asymmetry of monetary adjustment processes, which had existed under fixed exchange rates<sup>16</sup>. Schlesinger argued that

*"by releasing the Bundesbank from its duty to intervene on the foreign exchange markets...the Federal Government freed monetary policy from the obligation to create central bank money involuntarily via purchases of foreign exchange. This enabled the adoption of a policy of monetary targeting"*<sup>17</sup>.

### 4.3 The Introduction of Monetary Targets

The collapse of the Bretton Woods system, which had the Bundesbank released from the necessity to create central bank money involuntarily via purchases of foreign exchange, enabled the authorities' to pay greater attention than before to the control of the money stock. Throughout the 1960s, the major operating target of the Bundesbank's monetary management had been the free liquid reserves of the banks, reflecting their potential lending capacity. Free liquid reserves consist of liquid assets<sup>18</sup> which can easily be converted into central bank balances. The Bundesbank controlled the banks' free liquidity stock by acting on minimum reserve requirements, rediscount quotas, and open market operations. The situation, however, changed in the early 1970s, when banks ceased to maintain a certain voluntary minimum level of free liquid reserves. In the past, banks had always tried to retain a certain level of free liquid reserves at any time, by reducing their lending volume whenever their free liquidity stock shrank. The new developments prompted the Bank to abandon its past

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*major country has imported inflation played such a major role as in the Federal Republic of Germany"*. (Emminger (1977), 'The D-Mark in the conflict between internal and external equilibrium', Essays in International Finance, no. 122, Princeton, p. 1, quoted in Kennedy (1991, p. 58)

<sup>16</sup> Emminger in Ciocca [ed.] (1987)

<sup>17</sup> Schlesinger, H. 'Die Geldpolitik der Deutschen Bundesbank 1967-1977, Kredit und Kapital, Vol. 11, p. 11, quoted in Issing (1992, p. 291)

<sup>18</sup> Liquid assets are excess reserves on deposit with the Bundesbank, domestic money market paper, money market investment abroad (excluded from the definition since 1973), unused rediscount quotas (included as a negative item), and short-term Bundesbank advances against collateral (Lombard credit) which were deducted since this type of Bundesbank credit cannot be obtained automatically and is only granted for a short period. (Sherman, 1990, p. 25)



operating target and called for a re-orientation of monetary policy, confronting the Bundesbank with the task of finding suitable monetary indicators and intermediate targets.

After the oil price shock, uncertainty about the thrust and doubts about the effectiveness of monetary policy had increased and inflationary expectations became to be more influenced by current price developments rather than by the Bundesbank's stabilisation policy. Issing<sup>19</sup> stated in this context that until the end of the 1960s and early 1970s, most countries followed strategies which set about achieving monetary policy objectives directly. The outcome of such policy approaches was rather unsatisfactory, subsequently leading to a shift in emphasis in favour of intermediate monetary targets. The Bank was urged to take action in view of the dangers threatening monetary stability and the publication of an intermediate monetary target by the Bundesbank was perceived as crucial for restraining price expectations and to signal

*"that monetary policy was no longer prepared to accommodate the continuation of the inflation process from the monetary angle. In this way central banks urged economic agents to reckon with lower inflation rates in the medium run and to adjust their expenditure stance accordingly"*<sup>20</sup>.

While searching for an appropriate intermediate target aggregate, the Bundesbank considered a wide range of different monetary indicators, but decided finally in favour of the central bank money stock (CBMS)<sup>21</sup>.

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<sup>19</sup> Issing (1994, p. 136)

<sup>20</sup> Schlesinger (1983, p. 6)

<sup>21</sup> In its annual report in 1972, the Council of Economic Advisors had already proposed a money stock-oriented policy approach.

### 4.3.1 The Setting of Intermediate Monetary Targets

#### 4.3.1.1 Properties and Control of the Central Bank Money Stock

A target for the central bank money stock was announced for the first time in December 1975. The central bank money stock is defined as the total amount of currency in the hands of non-banks and the required minimum reserves on banks' domestic liabilities. The required minimum reserves are calculated at constant reserve ratios from January 1974 with 16.6% for sight deposits, 12.4% for time deposits, and 8.1% for savings deposits. Consequently, the components of the minimum reserves are in a relation of about 4:3:2 to each other. Currency in circulation is given full weight in the definition of the CBMS. The differentiated weighting of the various components indicates their degrees of 'moneyness'. The CBMS differs only slightly from the monetary base, although the quantitative difference is highly significant, mainly in the way that it does not comprise the minimum reserve requirement on deposits of non-residents and the excess reserves of the banks. The central bank money stock is a measure of the monetary expansion which has already taken place (backward-looking indicator) rather than a measure of the creation of central bank money. The CBMS serves both, as intermediate target aggregate and indicator of monetary conditions. The advantages of the CBMS as an intermediate target aggregate are its early availability (two weeks earlier than  $M_3$ ) and the fact that it is calculated from monthly averages<sup>22</sup> instead of end-of-month data as for  $M_1$  and  $M_3$ . The reported data for CBMS are, therefore, less subject to random influences in comparison to the other monetary aggregates. Nevertheless, unexpected movements in currency in circulation can temporarily lead to distortions and reduce the informative value of the indicator, but such developments had in the past, usually, returned to normal after a few months. If the divergences prove more persistent, the Bundesbank draws special attention to the distortions and their probable reasons in its

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<sup>22</sup> CBMS is calculated from average levels of the Bundesbank's Weekly Return and the minimum reserve statistic.



monthly analysis, to prevent the general public misinterpreting the stance of monetary policy<sup>23</sup>. CBMS has a relatively stable relationship to nominal GDP over the long term, which makes it particularly valuable as an indicator from a macroeconomic perspective<sup>24</sup>. The results of econometric studies suggest that changes in the central bank money stock and in the aggregates  $M_1$  and  $M_3$  tend to run ahead of increases in expenditure. Schlesinger (1983, p. 7) remarked that

*"by prescribing a margin for the desired expansion of the central bank money stock it can therefore be shown convincingly that monetary policy can set a normative 'monetary framework' for the longer-term trend of production and prices and for nominal expenditure in the economy - a framework which finally makes all those concerned share the responsibility"*.

Furthermore, CBMS is closely related to the monetary aggregate  $M_3$ , since both aggregates incorporate the same financial assets, only weigh them differently, and expand at roughly the same pace. The importance of the central bank money stock for monetary control by the Bundesbank arises from the fact that

*"it underlines in a special way the responsibility of the Bundesbank for the overall monetary developments: without an expansion of the central bank money stock an increase in the money in the hands of nonbanks is unthinkable. Calculated at current reserve ratios, the central bank money stock is in the final analysis the direct contribution of the central bank to aggregate money creation"*<sup>25</sup>.

Another factor, which played a crucial role in the Bundesbank's choice of CBMS as target aggregate, was that savings deposits are included in the definition of the indicator. In the past, the Bundesbank had been confronted with considerable problems in recording and interpreting the development of  $M_1$  and  $M_2$  because of frequent and often unpredictable changes in the deposit structure due to interest rate changes. Furthermore, institutional reasons might have played a role as well in the

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<sup>23</sup> Schlesinger (1983)

<sup>24</sup> During the period 1961-1976, the growth rate of the CBMS deviated only in four of the years by more than 2 percentage points from the growth rate of nominal income. (Duwendag, 1976, p. 276)

<sup>25</sup> Schlesinger (1983, p. 7)

Bundesbank's choice of an intermediate target aggregate<sup>26</sup>. The Bundesbank influences the central bank money stock indirectly by changing short-term interest rates and bank liquidity yet faces considerable uncertainty about the intensity and time lags of this instrument. The Bundesbank lacks a fully reliable econometric model of the monetary transmission mechanism, which necessitates a continuous interpretation of new data and evidence in order to allow an adequate response to the current monetary conditions. The Bank has made it clear that the control of the CBMS is not totally independent of the decisions of banks and non-banks, at least not in the short-run<sup>27</sup>. When deriving the annual target for the central bank money stock the Bundesbank takes the following variables into account<sup>28</sup>:

- (1) the expected growth in the production potential,
- (2) the desired change in the utilisation of the production potential,
- (3) the 'unavoidable' price increase<sup>29</sup>,
- (4) the expected development of the 'velocity of circulation' of money<sup>30</sup>.

An overall economic projection, which is discussed and co-ordinated with the government, precedes the formulation of the monetary target. The targeting procedure is based on the presupposition of initially stable prices and a normal utilisation of the production potential. The publication of the key data and the derivation procedure underlying the setting of a target for the CBMS by the Bundesbank, enhances the transparency of monetary policy and enables decision makers in other fields to adjust their actions and expectations accordingly.

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<sup>26</sup> If for example, the Bundesbank had chosen  $M_1$  as intermediate target, it would have required drastic measures to influence  $M_1$  with open market operations, since the German market for open market papers lacks size, depth, and elasticity. Large open market operations would have too strong repercussions on interest rates in the money, credit, and capital markets. (source: Duwendag, 1976, p. 294)

<sup>27</sup> Schlesinger (1976, p. 441)

<sup>28</sup> Bundesbank (October 1982, p. 84)

<sup>29</sup> The Bundesbank considers as an 'unavoidable' rise in prices a rate of price increase which cannot be prevented even by a policy strictly committed to stability (somewhat below the forecasted rate of inflation). When price stability is lacking in the initial stage, inflationary expectations have already affected arrangements between economic agents, although the central bank is aiming at price stability. (Bundesbank, October 1982, p. 85)

<sup>30</sup> This factor, the velocity of circulation of the CBMS, is the connection to the nominal GDP.

However, there are several problems which arise from the use of the central bank money stock as an intermediate target variable. Firstly, the CBMS includes a high proportion of currency in circulation with its full weight. Random shocks in the demand for cash can temporarily increase the amount of cash in circulation, reflecting inadequately the degree of monetary expansion, since the increase in the cash holdings could be partly a result of shifts in the deposit portfolio. Since this statistical disadvantage can at times be quite considerable, the Bundesbank takes in its assessment of the monetary stance the development of other monetary indicators and a wide range of economic data into account. Furthermore, the similarities between the central bank money stock and the monetary base can easily lead to the misconception that the targeting of the CBMS is some sort of monetary base control concept<sup>31</sup>. Another point of criticism is the exclusion of minimum reserve requirements on banks' foreign liabilities, since they are not fundamentally different from banks' domestic liabilities<sup>32</sup>.

The Bundesbank used the central bank money stock as its intermediate target aggregate until 1987. Over the years, the definition of the money stock has undergone certain changes. For the first years after the adoption of monetary targeting, the annual target for the CBMS was defined as a single figure, this was changed to a target corridor (3% margin) in 1979, above all due to the experience in 1978, which witnessed a substantial increase in real terms in the D-Mark's value. The policy of monetary targeting is generally vulnerable to external developments. Moreover, persisting uncertainties concerning the development of the macroeconomic variables as well as short-term fluctuations in the demand for money prompted the Bundesbank to review the announced target after six months to decide, according to the monetary

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<sup>31</sup> Von Hagen (1988, p. 105) argues that *"the performance of an operating regime with the base as the operating target is superior to the performance of the regime currently adopted by the Bundesbank"*. This result is obtained from an empirical evaluation of alternative operating regimes for money stock control based on the multiplier model.

<sup>32</sup> Duwendag (1976, p. 286), the Council of Economic Advisors argued similarly in its 1974 annual report

conditions and trend, whether to aim at the upper or at the lower part of the target corridor.

#### 4.3.1.2 Monetary Targeting under Flexible Exchange Rates

In the first years of monetary targeting in Germany, the Bundesbank set the annual target for the CBMS in terms of a precise figure. The Bundesbank generally does allow in its targeting strategy short-term deviations of the money stock growth from the target. Correcting measures (changing the course of interest rates and liquidity policy) are only taken when the departure of the actual growth rate from the target proves more persistent. From 1975 to 1978, the actual annual growth rate of the money stock always exceeded the target, primarily for external reasons. In 1975, the Bundesbank viewed a growth rate of the money stock of 8 per cent as consistent with its commitment to price stability. However, the economic upswing was more hesitant than expected, urging the Bundesbank to apply expansionary measures to achieve its objectives. Despite the expansionary monetary stance, the increase in the CBMS was still below the target in the middle of the year, leading, on the side of the Bundesbank, to the application of additional expansionary measures. In the second half of 1975, the economy was on the steep path of recovery and the central bank money stock accelerated rapidly, resulting in an overshooting of the target.

The target for 1976 was set, in contrast to the year before, in terms of a year-on-year average rather than a postulated expansion during the year. In the same year, the Bundesbank intervened heavily in the foreign exchange market to support the other currencies in the snake. The Bundesbank's engagement in large exchange rate interventions met with criticism inside Germany. In October 1976, the 'snake' members finally agreed on an exchange rate adjustment which involved five currencies, followed by relatively frequent realignments in subsequent years. In the second half of 1970, the rate of inflation fell which was to a considerable extent due

to more moderate wage settlements<sup>33</sup>. After the collapse of Bretton Woods, a multi-currency standard had come into existence in which hard currencies, such as the Yen and the D-Mark, were in high demand as savings as well as transaction medium. This general constellation placed the Bundesbank once again in a policy dilemma. Whereas on one hand, tight domestic monetary policy and appreciation reduced the competitiveness of German products on the world market, if the Bundesbank on the other hand were to adopt a rather expansionary monetary approach, it would risk losing credibility. Between 1972 and the end of 1977 the weighted external value of the Deutschemark against the sixteen currencies which were at the time officially quoted in Frankfurt, increased by about 43 per cent. This development, however, should be seen in part as a correction of the previous undervaluation of the DM, which had facilitated exports and impeded imports<sup>34</sup>.

In 1977, the snake still accommodated seven countries, with the Deutschemark serving as anchor. At the 1978 Bonn Economic Summit, the government agreed that Germany would take on the 'locomotive' role of pulling the international economy out of the recession. In 1977 and 1978, the Bank intervened heavily in the foreign exchange market to support the dollar. The growth of the CBMS turned out significantly higher than the target value in 1978<sup>35</sup>. At the end of 1978, the second oil crisis of the decade hit the world economy. In 1979, the Bundesbank changed course, after the United States had pushed the German authorities to adopt more expansionary fiscal measures, the Bank refused to accommodate an increase in the fiscal deficit and was determined not to allow any further overshooting of the target. The Bundesbank's decision was intended as a signal of stability to fiscal policy as well as an attack on the US dollar, whose weakness had led to large foreign capital inflows into Germany which jeopardised internal stability.

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<sup>33</sup> Spahn (1989, pp. 18/19)

<sup>34</sup> Emminger in Ciocca [ed.] (1987, p. 132)

<sup>35</sup> The Bundesbank (1985, 37/1, p. 23) stated in its Monthly Report that "the failure to meet the target was not only due to the control techniques used but also a deliberate monetary policy reaction to the undesirable external development at the time".



In 1979, the Bundesbank defined for the first time its annual target in terms of a target corridor, which increased the Bundesbank's discretionary room for adjustment to unexpected distortions in the course of the year, without jeopardising the credibility of its targeting strategy. This step to the 'corridor concept', however, met with criticism, raising doubts in its opponents<sup>36</sup> whether the Bundesbank's monetary policy is indeed geared to the production potential. In the course of internal negotiations between the US government and western central banks to support the dollar, the Bundesbank remained strong and objected against the demands put forward by the American authorities. In autumn 1979, the dollar came under severe pressure and the US authorities had no other alternative than changing their exchange rate policy.

#### **4.4 The EMS Experience: German Monetary Policy under Pegged Exchange Rates**

The European Monetary System (EMS) was established in 1979, as a reaction to the large exchange rate fluctuations of Community currencies throughout the 1970s. The EMS incorporates two key features, the Exchange Rate Mechanism (ERM) with pegged exchange rates and the European Currency Unit (ECU) as a weighed basket of all participating currencies. The currencies of the participating countries are allowed to fluctuate freely within a limited band. Whenever the exchange rates approach either the upper or the lower edge of the margin of the band, the central banks, whose currencies are involved, have the obligation to intervene in the foreign exchange market to bring the exchange rate movement back on course. The fluctuation band was for most currencies set at  $\pm 2.25\%$  around the central rate, which was meant to provide sufficient flexibility to accommodate different inflation trends. The arrangement was coupled with the stipulation of convergence of economic policies among the member countries, implying bilateral rapprochement rather than a joint

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<sup>36</sup> See i.e. Ribhegge (1989, p. 210)

policy towards a low rate of inflation. The Bundesbank raised strong objections against this institutional feature of the ERM. With Germany's entry in the ERM, the potential conflict of interest between government and the Bundesbank about exchange rate policy re-emerged to its full extent. The institutional features of the arrangement considerably limited the Bundesbank's freedom of decision making in regard to its mandate for domestic price stability and gave once again strong discretionary incentives to the Ministry of Finance which is in charge of exchange rate policy. It should, therefore, not come as a surprise that the Bank strongly opposed joining the system, yet the government was determined to make Germany a member of the EMS. Different arguments have been put forward to explain Germany's incentive for EMS membership<sup>37</sup>, which shall not be discussed here. Although the EMS was originally designed to function as a symmetric system, it soon became an asymmetrical system in which the Bundesbank assumed a central role and set the monetary standard for Europe<sup>38</sup>. Norbert Kloten<sup>39</sup>, a member of the Bundesbank Council, remarked on that point "*the Bundesbank never wanted a dominant role in Europe's monetary policy-making...she was forced to accept that role*". With Germany's membership, asymmetry appears to have been from the very beginning inherent in the EMS, due to the Bundesbank's constitutional responsibility for stable prices. The major motivation for high-inflation countries to join the EMS is rather clear<sup>40</sup>. These countries gain credibility from the Bundesbank's anti-inflation reputation by pegging the exchange rate to the D-Mark which forces the central bank to follow the monetary policy of the 'anchor' currency. The credibility of membership in a fixed exchange rate system for these countries depends crucially on the ability of the authorities to convince speculators that their only objective is the maintenance of

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<sup>37</sup> See for a summary of alternative explanations Fratianni/von Hagen (1990, p. 90-93).

<sup>38</sup> Fratianni and von Hagen (1990) reject on the grounds of empirical evidence the argument of German dominance in the EMS.; Weber's findings (1991, p. 75/76) classify the EMS as "*a bipolar system in which the French franc offered a soft currency alternative to the hard currency option of the German mark*"; Gros and Thygesen (1992) found that the EMS has been less asymmetric than often assumed and the degree of asymmetry seems to have changed significantly over time.

<sup>39</sup> Kloten, N. (1988): "Die Europäische Währungsintegration: Chancen und Risiken", Deutsche Bundesbank Auszüge aus Presseartikeln, 81, p. 3) quoted in Fratianni/von Hagen (1990, p. 92)

<sup>40</sup> Giavazzi/Pagano (1988)



the fixity of the exchange rate, whatever the unemployment and output costs. The disadvantages of fixed exchange rates can be generally described as being threefold<sup>41</sup>; Firstly, the differences in reputation of the participants can lead to low credibility of the whole system. Secondly, fixed exchange rates considerably limit the scope of adjustment to disturbances. Thirdly, such arrangements end up usually with one leader and many followers (the 'N-1 problem'), which can endanger the stability of the system, when the leading currency comes into difficulties and fails to sustain its role.

The year 1979 witnessed an increase in the consumer price index of 4.1 per cent<sup>42</sup>, a current account deficit of DM 11 billion, and a dramatic rise of 11.6 per cent in import price index. Although, the Bundesbank achieved its annual growth target for the CBMS imported inflation increasingly threatened domestic price stability. The conflict between exchange rate objective and responsibility to protect the internal value of the D-Mark in the face of a permanent threat of imported inflation was to become the major challenge for the Bundesbank throughout the 1980s. 1980 was the year of the biggest German government deficit since 1950, at DM 28 billion, which equals 1.28% of GDP and rising unemployment. The Bundesbank showed serious concern about the current account deficit and its effect on exchange rate expectations and the Deutschemark's role as an international reserve currency<sup>43</sup>. Although the money supply was heavily influenced by external factors throughout the year, the monetary target for the CBMS, however, was met with 5 per cent (lower end of the target range).

In the first two years following the establishment of the EMS, external factors forced the Bundesbank to maintain a tight monetary stance despite increasing domestic

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<sup>41</sup> See de Grauwe (1992)

<sup>42</sup> The increase in the CPI in Germany in 1979 was relatively low, compared to other countries (See OECD Economic Outlook, July 1981, p. 140) which observed a two-digit rise in consumer prices.

<sup>43</sup> "The willingness of foreigners to hold financial assets in a certain currency is the ...test of whether a central bank is fulfilling its task of maintaining a stable monetary system. To follow a given 'monetary rule' in such a constellation is at best a secondary concern". (Spahn, 1989, p. 24)

pressures of a recession. The second oil price shock caused considerable problems for Germany, which was dependent on imported oil and gas. The situation was exacerbated by a deterioration of the trade balance with non-OECD countries. The strengthening of the dollar and a declining confidence in the DM led to a capital outflow in 1980. The authorities intervened in the foreign exchange market to prevent a serious decline in the external value of the D-Mark. However, the policy of sterilised intervention on currency markets was not sufficient to counteract the Mark's downward trend. In early 1981 the \$/DM exchange rate dropped to an alarmingly low level which forced the Bundesbank to tighten monetary policy even further. After the meeting of the Central Bank Council on February 19, the Bundesbank announced drastic measures<sup>44</sup>, such as a rise of the Lombard rate to 12 per cent and the suspension of the right of commercial banks to obtain overnight Lombard funds. The Bank's restrictive policy necessitated interventions in favour of other EMS currencies, while the weakened Mark still needed support.

The Bundesbank's interest policy was strongly attacked by the government, leading to a serious political conflict between the two parties which eventually brought the downfall of the government of the Social Democrats under Helmut Schmidt. The drastic measures applied led almost immediate reaction in the markets. By April the Deutschemark had regained and stabilised its place as the strongest currency in the EMS. After the external pressures had eased the Bundesbank shifted its policy towards other economic goals (according to its mandate embodied in Article 3 and 12 of the Bundesbank Act). However, a meeting between Bundesbank officials and Chancellor Schmidt ended in a clash of opinion after the Bank had refused to reduce interest rates to stimulate the economy. The government had already considered an extension of its borrowing from the OPEC countries as alternative source of financing. The Bundesbank raised strong objections against this financial plan on the

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<sup>44</sup> Overnight credits to the banks through the 'special Lombard' system went up to 28% after the CBC meeting in February.

grounds that this would lead to an unacceptable increase in the money supply, and announced not to support the government in this matter by issuing new federal bonds. The government found an alternative way by channelling the OPEC funds through the Credit Agency for Reconstruction (Kreditanstalt für Wiederaufbau), which was outside the jurisdiction of the Bundesbank. The German government finally raised a loan of DM 6.3 billion together with the French government .

This conflict demonstrated more clearly than ever before the importance of the Bundesbank's independent constitutional position. Moreover, it challenged the legal position and the scope of jurisdiction of both parties who vehemently defended their views<sup>45</sup>. The Bundesbank strongly criticised in its 1980 Annual Report the government's policy, accusing it indirectly of irresponsible behaviour and urging to change public policy to bring the budget back to 'normal'<sup>46</sup>. The wide public consensus about the unsustainability of the government's deficit policy, coupled with the loss of faith in demand management after the second oil price shock marked the end of the Keynesian era in Germany. In 1982, the new government of the Christian Democrats announced a policy shift towards a supply-side oriented strategy and a medium-term budgetary consolidation.

The Bundesbank met its monetary target in 1982, with the growth of the CBMS being in the bottom half of the range. As in the summer of 1982, the current account had moved into surplus and the rate of inflation had declined, the Bundesbank switched to a more expansionary stance. At the beginning of 1983, prior to the EMS realignment in March, tension in the EMS led to a heavy inflow of foreign capital. In the first half of 1983, the CBMS growth was considerably above the target range which was mainly due to the large capital inflows and a structural shift in the deposit portfolio, after the decline in short-term interest rates. After the realignment in March, interest

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<sup>45</sup> Kennedy (1991, p. 51)

<sup>46</sup> The Council of Economic Advisers supported in a special report the Bundesbank's position.

rates rose and capital flows reversed which enabled the Bundesbank to meet its annual target by the end of the year. Until the spring of 1985 monetary policy decisions were made under continuous consideration of the dollar's strong performance in the exchange market. The D-Mark's weakness had a favourable effect on German exports, but threatened domestic price stability, which prompted the Bundesbank to intervene frequently in support of the DM/\$ exchange rate. In 1985 Germany joined in the concerted action of other central banks to prevent further appreciation of the dollar. The dollar devaluation had strong repercussions on the EMS which were temporarily resolved by the realignment in April 1986. Moreover, the expected disciplinary effect of the EMS was rather weak in the first half of the 1980s since high-inflation countries frequently realigned during this period.

1986 was the year of an extraordinary economic situation with the Mark increasing in real terms against the dollar by 32.2 per cent, the current account showing a record surplus of DM 76.5 billion, and a negative inflation rate at 0.2 per cent. At the end of the year, increasing tension in the EMS around the intervention points obliged the Bundesbank to purchase foreign currencies on a large scale. The Bank was confronted once again with having to choose between the real revaluation of the D-Mark and the overshooting of the monetary target. In the course of 1987 the volume of currency in circulation increased substantially<sup>47</sup> due to factors, such as the negative rate of inflation which meant that non-interest bearing deposits yielded a real return. The Bundesbank came under increasing international pressure, especially from the US, to implement a more expansionary monetary policy. Strong upward pressure on the Mark and Germany's obligation to support the dollar, arising from its participation in the Louvre Accord, prompted the monetary authorities to allow a significant overshooting of the CBMS target both in 1987 and 1988. Kloten<sup>48</sup> remarked that in the face of these factors, the Bundesbank opted for a 'wait-and-see' attitude.

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<sup>47</sup> At the end of 1987, currency in circulation plus sight deposits accounted for more than 70 per cent of the CBMS. (OECD Economic Survey, 1987/88, p. 27-9)

<sup>48</sup> Kloten (1993, p. 44)

*"It adhered to the monetary status quo; by thus meeting the demand for central bank money resulting from the development of bank deposits and the volume of currency in circulation" but "it refrained from active control of the expansion of the monetary aggregates".*

In both years monetary policy supported economic activity. After initial strong resistance, the Bundesbank finally cut central bank interest rates in January 1987, in response to a continuous flow of foreign capital into Germany. Furthermore, the volume of securities repurchase agreements was increased considerably. In the course of the year, further substantial interventions in the foreign exchange market were undertaken to prevent destabilisation in the EMS and to dampen the upward movement of the Deutschemark against the dollar. The Bundesbank's request for another realignment to ease the pressure was turned down by the Ministry of Finance. In the middle of 1988, the Bundesbank eventually started to tighten monetary policy after the Federal Reserve had prepared the ground, by adopting a more restrictive policy approach.

The monetary target for 1988 was set in terms of the broad money stock  $M_3$  which, according to various studies, was considered by the Bundesbank as a 'particularly suitable' monetary policy indicator for Germany and as superior compared with narrower definitions<sup>49</sup>. Moreover,  $M_3$  had moved broadly in line with the CBMS in the past two decades. The annual target values for  $M_3$  are derived from a 'Potentialformel' which is calculated in the following way:

$$M_3 \text{ target} = P_{\text{normative}} + Y_{\text{trend}} - V_{\text{trend}}$$

P - price  
V - velocity of money  
Y - output.

However, the monetary authorities emphasised that the change in the target variable neither affects the underlying rules of monetary targeting, nor the medium-term orientation. The Bundesbank's intention was to take account of the marked reaction of

<sup>49</sup> See Deutsche Bundesbank Monthly Report 1988, (40/3) and 1985, (37/1)

money in circulation to fluctuations in interest and exchange rates. Developments in the CBMS had in the past often exaggerated the actual monetary expansion due to the high proportion of currency in circulation in this aggregate. Furthermore, it had proved necessary on occasions in the past to extend the definition of the money stock for control purposes (i.e. Euro-deposits held by domestic non-banks). The Bundesbank continued to derive a CBMS target for the transitional period, beside the target for the  $M_3$ .

The second half of the 1980s was marked by continued relatively low economic growth compared with other major industrial countries, associated with a weakness of real investment, unprecedented surpluses in the balance of payments, and a very strong D-Mark. After the 1981-2 recession, unemployment rose rapidly, remaining persistently at over 2 million for the next five years. The trend started to reverse only from mid-1988 (figure 4.1).

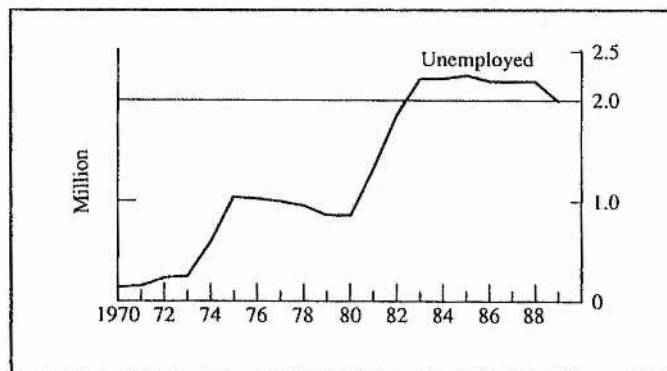


FIGURE 4.1

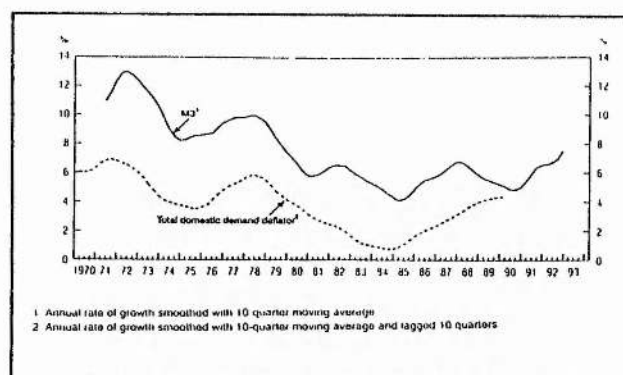
(source: Council of Economic Advisers 1989)

The price indicator, however, proved satisfactory<sup>50</sup>. The tight Bundesbank policy was manifested in a consistently falling inflation rate from 1982 onward, reaching a negative rate in 1986. However, after the record low in 1986, inflation started to rise again, peaking in mid-1989 by over 3 per cent (figure 4.2). The targeting record in the

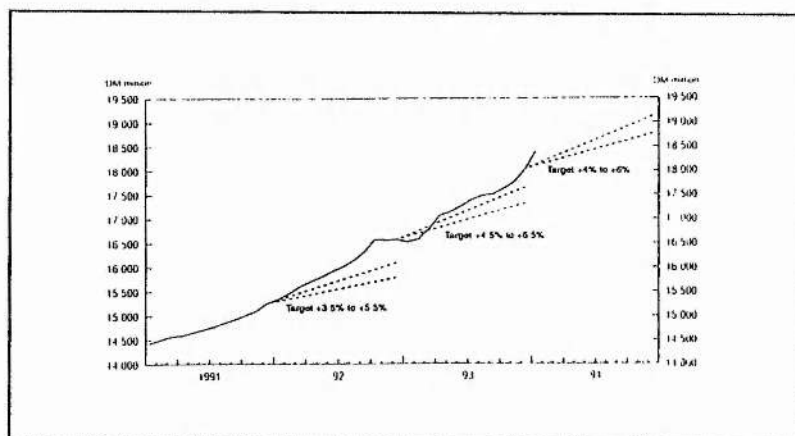
<sup>50</sup> Spahn (1989, p. 29) notes in this context that "owners of monetary assets can defend themselves against the 'injustice' of inflation with a threat of capital flight to such an extent that monetary policy is prepared to pay the price of higher unemployment".



second half of the 1980s was rather poor with overshoots in 1986, 1987, and 1989 (figure 4.3).



**FIGURE 4.2**  
(source: Deutsche Bundesbank and OECD,  
in OECD Economic Survey 1994, p. 48)



**FIGURE 4.3: Monetary Targets and Outcomes**  
(source: Deutsche Bundesbank, Monthly Report  
in OECD 1989/90, p. 11)

Findings of a study by von Hagen (1989, p. 68) indicate that

*“the Bundesbank's dollar policies and participation in coordinated interventions since 1985 have contributed significantly to the excess growth of German money supply, relative to the Bank's monetary targets in the second half of the 1980s”*<sup>51</sup>.

<sup>51</sup> This conclusion is based on the result that the Bundesbank does not completely sterilise the foreign exchange market interventions in the long-run. The monetary base growth was especially affected by these Bank's interventions, when the D-Mark's movement against the dollar and the EMS currencies was in the same direction.

Compared with countries, such as the United Kingdom, the German financial system appears to have had lesser incentives to develop new financial instruments<sup>52</sup>. Money stock control in Germany was, therefore, unaffected by the distorting consequences of strong innovation activities.

In the second half of the 1980s disinflation in the EMS had been considerable. However, the disinflation record is not exceptional compared to the world-wide trend of declining inflation in this period, but was accompanied by higher unemployment which proved far more persistent in the EMS compared to non-EMS OECD countries. Deep recessions in many EMS countries after the second oil price shock made their respective governments initially abstain from conducting restrictive monetary policies, leading at the beginning of the 1980s to many realignments and a low credibility of the EMS. Towards the end of the 1980s, the convergence of the inflation rates in the EMS was systematic and substantial<sup>53</sup>. Between 1987-92 no realignments occurred and the average inflation could be brought down from a peak in 1980 at 11.6% to 2.2% in 1987. Gros and Thygesen (1992, p. 156) stated that the EMS was a successful response to external and internal monetary stability<sup>54</sup>.

German monetary policy in the 1980s was strongly affected by various external constraints which considerably limited the latitude of monetary adjustment to undesired domestic developments. The D-Mark's international double role as second most important reserve currency after the dollar and as EMS 'anchor', coupled with the Bundesbank's responsibility for domestic price stability, often resulted in a policy dilemma which was resolved at the expense of either one of these responsibilities.

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<sup>52</sup> See Dudley (1986) and Issing (1992)

<sup>53</sup> In the second half of the 1980s, the EMS seemed to have successfully imposed discipline on the conduct of monetary policy by its members. Weber (1992), however, argues that only the smaller EMS participants have gained an anti-inflation reputation during the EMS period.

<sup>54</sup> According to a study by Weber (1991), the credibility of the exchange rate fixity was mostly credible under the Bretton Woods system and within the European currency snake, that was, however, not the case for the EMS arrangement.

## 4.5 Challenges for the Bundesbank in the 1990s

The currency union<sup>55</sup> between the 'East German Mark' and the D-Mark was attained on the 1 July 1990, regarded as the *"most important challenge in the history of the Bundesbank"*<sup>56</sup>. The monetary authorities had to overcome immense difficulties prior to the accomplishment of the currency union, arising mainly from the structure of the GDR's banking and money system and the deep economic and social divergence between the two currency areas. Furthermore, strong political constraints were imposed on the Bundesbank in the process of defining the technical and institutional features of the monetary unification. The centrepiece of political and economic concern was the conversion rate of 'Marks' into 'D-Marks'. This rate was the factor which decided the competitiveness of East German products in the all-German and the international market. Moreover, it was highly significant for the determination of the D-Mark amount of wages and rents in the GDR, although this significance proved short-lived due to factors whose discussion would go beyond the scope of this paper. The Bundesbank's greatest concern was the determination of the conversion rate for financial stocks since an overstating of this position would have had a significant inflationary impact on the enlarged currency area. The monetary authorities calculated that the non-inflationary money stock totalled about 120 billion D-Mark, which implied a conversion rate of 2:1, since the 'Mark' money stocks of private non-banks amounted to DM 240 billion prior to the currency union. However, the government acknowledged the strong political implications and pushed the Bundesbank to accept an average conversion rate of 1.6:1<sup>57</sup> which equalled an initial

<sup>55</sup> Although this notion is widely used, it is rather misleading in this case and does not apply in the usual sense. An extension of the D-Mark to the area of the German Democratic Republic or a new definition of the DM-area seems more correct, since a 'currency union' in the usual sense requires two equal and independent partners (countries) which form jointly a supranational monetary order. [See: Bofinger/Kloten (1995) and König (1995)] One should therefore be careful with drawing parallels between the German currency union of 1990 and the coming European monetary union, since the initial situation is significantly different within Europe.

<sup>56</sup> Bofinger/Kloten (1995, p. 1)

<sup>57</sup> Two separate conversion rates were applied at the end. A limited amount of deposits was converted 1:1 (depending on their age, East Germans could convert an amount of M 2.000, M 4.000, or M 6.000 at this conversion rate), while all other deposits, currency, and bank credits were subject to a 2:1 conversion rate.

provision of DM 180 billion of central bank money. The lower conversion rate implied an excess money stock of DM 60 billion for the whole DM-area<sup>58</sup>. The Bundesbank did not, however, try to neutralise the excess money supply.

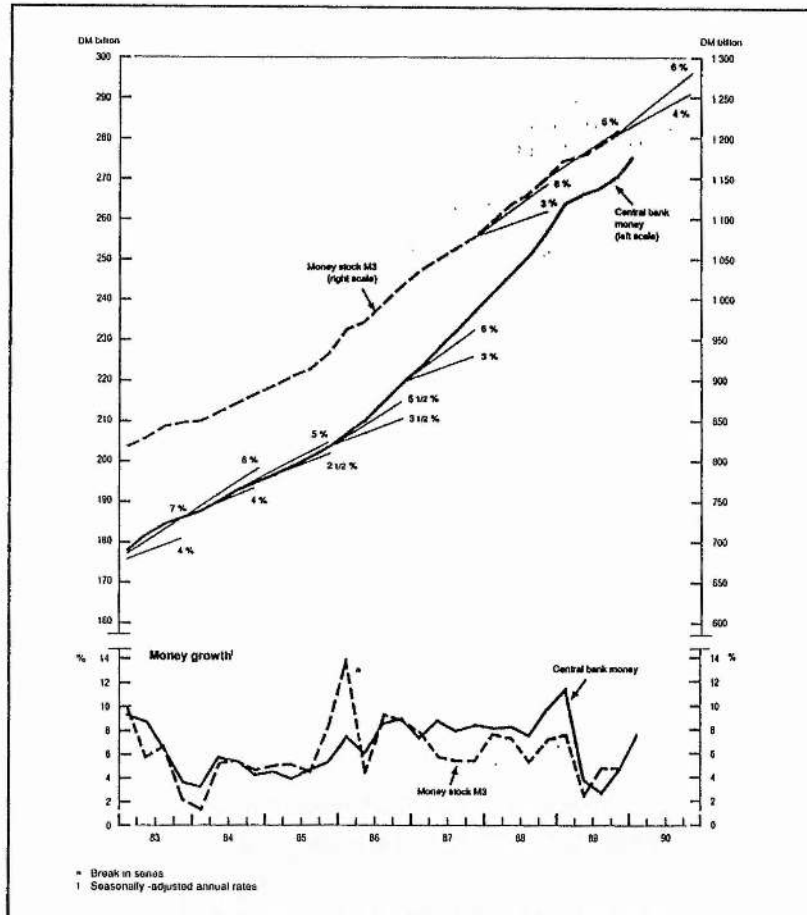
After unification, the Bundesbank was challenged once again by the task of determining, according to its 'Potentialformel', the annual monetary growth rate for the whole of Germany. In terms of inflation, the annual value which had been set at 2 per cent since 1984 was maintained for the all-German currency area. The Bundesbank did not allow a higher normative inflation rate for the adjustment period and *"tailored a relatively tight 'monetary coat' for the entire German economy"*<sup>59</sup>. Furthermore, the estimation of the velocity of circulation proved rather difficult since a long-term trend of the velocity of  $M_3$  was not available for the whole of Germany. This prompted the monetary authorities simply to include the West German trend value in the calculation of the all-German monetary targets from 1991 onwards, which was 0.5 per cent for the years 1991 and 1992, resulting, according to Bofinger and Kloten (1995), in rather ambitious targets. In 1993, the Bundesbank eventually changed the value of the velocity variable in the 'Potentialformel' to one percentage point. Another factor which proved difficult, was the calculation of sound values for the Pan-German production potential due to the exceptional circumstances of the transition period. The Bank employed once again a rather pragmatic approach by using the West German trend values, whereas only small adjustments were made to consider the East German production potential. The monetary targets and their outcome for the post-unification are shown in figure 4.4.

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<sup>58</sup> It equals 4.5% of the Pan-German money stock. (Bofinger/Kloten, 1995, p. 9)

<sup>59</sup> Bofinger/Kloten (1995, p. 12)

## Monetary Policy in the Federal Republic of Germany



**FIGURE 4.4: Money Supply Developments**  
 (source: OECD Economic Survey, 1994, p. 43)

The first years after unification were marked by a strong monetary growth, which only decelerated in mid-1994. Nevertheless, the strong monetary expansion did not cause great inflationary pressures, which cannot be attributed to an instability of the German demand-for-money function, since the money demand remained astonishingly stable. Bofinger and Kloten assume on basis of these observations that the Pan-German monetary targets were set too cautiously (too low) in the initial post-unification period. However, to justify the Bundesbank, it has to be said that the calculation of Pan-German target values was substantially aggravated by the uniqueness of the situation and the resulting high degree of unpredictability and impossibility in obtaining precise information about the actual state of 'affairs'. Furthermore, between 1989 and 1994 the D-mark appreciated in real terms by more

than 10 per cent against the currencies of the other Community members, which was as König (1995) argues, not initially triggered by German unification, but rather represented a delayed appreciation of the D-Mark. After unification, various commentators<sup>60</sup> emphasised the need to form a broad coalition between the government, the Bundesbank, trade unions, and employers which provide the ground for a co-ordinated approach, directed at counteracting inflationary pressure and to create favourable conditions for economic recovery in Eastern Germany.

After the crisis in September 1992, the EMS bands of fluctuation were widened to  $\pm 15$  per cent on 2 August 1993, leading to a de facto suspension of fixed exchange rates and a floating of the system. Prior to the crisis, the Bundesbank was confronted with the dilemma of internal versus external stabilisation and made its choice in favour of the former<sup>61</sup>. The domestic situation urged the Bundesbank to adopt a tighter monetary stance in Germany. The decision to widen the fluctuation bands, however, had direct implications for the planned European Monetary Union (EMU). Exchange rate stability, during the two years preceding transition to the final stage of EMU had previously always been advocated as one of the essential requirements to secure a smooth transition<sup>62</sup>. It needs to be seen whether this criteria will be dropped or if applied, on which grounds the fulfilment of exchange rate stability will be assessed.

#### 4.6 Concluding Remarks

Although the Bundesbank only succeeded in meeting half of the announced monetary targets between 1974 and 1994, it acquired a high degree of credibility over the

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<sup>60</sup> Spahn (1993) and Heise (1992)

<sup>61</sup> Winkler (1994, p. 73) remarks to the Bundesbank's choice that *"the insistence on fighting inflation in Germany by raising interest rates may have protected the anchor currency status of the Deutsche Mark, but destroyed the currency area built upon the anchor currency"*.

<sup>62</sup> de Grauwe (1994) doubts the necessity of



decades. This credibility is rooted in the Bank's constitutional mandate to protect the internal value of the D-Mark and the continuous pursuit of an anti-inflationary monetary policy, which makes the Bundesbank an accountable 'player' in the monetary policy game<sup>63</sup>. Although, the Bank has the legal obligation to support the general economic policy of the government<sup>64</sup>, the objective of price stability takes precedence over other policy goals in German monetary policy<sup>65</sup>. On occasions of serious disagreement between the government and the Bundesbank, the Bank's independence was often the decisive device which restrained the government from conducting too expansionary policies and imposed more discipline on policy decisions.

Over the past decades, inflation in Germany was on average lower than in other industrial countries, such as the United Kingdom. The pursuit of price stability by the Bundesbank has often been impeded by external constraints. Under the fixed-exchange rate system of Bretton Woods, the Bundesbank was frequently obliged to intervene on foreign exchange rate markets, leading to an expansion of the domestic money stock, which jeopardised internal price stability. The so-called 'N-1 situation', which came to be criticised so often by politicians in the EMS framework, was at the heart of Bretton Woods. The collapse of the system enabled the Bundesbank to regain control over the money stock and allowed more latitude for the monetary policy of the Bundesbank in its pursuit of price stability. The D-Mark was, however, not totally shielded from external influences since the Bank was obliged to intervene under the

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<sup>63</sup> Lang and Welzel (1992) estimated monetary reaction functions for Germany to investigate whether electoral business cycles have led in the past to money supply changes. Using the rational partisan theory, the evidence suggests a relationship between election dates, outcomes, and money supply changes.

<sup>64</sup> In 1975, the former President of one of the Land Central Banks von Schelling, proposed to increase the independence of the Bundesbank by making the pursuit of price stability its only policy goal. This proposal, however, did not ultimately receive much attention. Roll (1993) argued that in cases where the central bank has a mandate to achieve a single, quantifiable objective, it is more democratically accountable.

<sup>65</sup> The results of a study by Baum (1983) show that the Bundesbank always supported employment whenever price stability was not endangered, or at least not as much as the employment objective.

'snake' arrangement and developments in the dollar exchange rate sometimes required stabilising intervention also.

In the EMS, the Bundesbank's refusal to compromise on internal price stability, as originally stipulated in the policy of 'burden-sharing' between the low- and high-inflation participants, and its anti-inflationary credibility made the D-mark the 'anchor' currency of the system. As already mentioned, an asymmetric arrangement usually ends up with one leader and many followers, the leader in the case of the EMS was Germany<sup>66</sup>. The assumption is that the leader is able to determine its policy relatively independent from the other members. The Bundesbank, however, frequently participated in co-ordinated interventions in the exchange rate market to support other currencies of the EMS. Germany's EMS membership and the role the D-Mark had involuntarily assumed in the system, coupled with its role as an international reserve currency, impeded the Bank's ability to maintain internal price stability. This 'double responsibility' proved particularly difficult to adhere to, whenever the developments of the other EMS currencies and the dollar required intervention in the same direction (von Hagen, 1989). The dilemma between external and internal stability, which the Bundesbank had already felt in the mid-1970s, was aggravated by German EMS membership.

Recently, the Bundesbank's institutional arrangement and the conduct and outcome of its monetary policy have come to attract increasing attention in the light of a transition to the third stage of EMU, where an independent European Central Bank (ECB) will be charged with the conduct of monetary policy for the whole of the Community. The institutional features of the arrangement for the future European 'custodian' closely resemble the set-up of the Bundesbank. Economists<sup>67</sup> express concern at the incautious 'exportation' of German central bank practices and at

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<sup>66</sup> Fratianni and von Hagen (1990), however, argue that, although Germany has surely been an important player in the EMS, there have also been other players, such as the Banque de France, which had an important impact and, therefore, reject the hypothesis of German dominance.

<sup>67</sup> i.e. Bofinger and Vaubel (1995)

applying them within the wider European framework. As Bundesbank President Schlesinger did not exclude the possibility of using monetary targets à la 'German-style' in the ECB, scepticism was expressed whether such a step would actually contribute to building an anti-inflationary reputation for the new authority, considering the Bundesbank's poor recent targeting record<sup>68</sup>.

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<sup>68</sup> Dunkel/Jünemann (1995)

# **CONCLUSION**

The purpose of this paper was to show that there is indeed a case for central bank independence. The arguments against discretion in monetary policy have been convincingly demonstrated by the game-theoretical literature, which has been reviewed in great detail in chapter one. The findings demonstrate that monetary policy decisions should be embedded in a framework, which eliminates the possibility of recourse to monetary expansion as a device to improve the government's prospects of re-election. It has been argued that one of the major difficulties of a 'rules-based' solution is its rigidity, which does not leave monetary policy with sufficient latitude to engage in necessary adjustment actions, whenever unanticipated disturbances occur. It is this context which establishes the superiority of an independent central bank committed to price stability, since such an arrangement combines the necessary flexibility with the credibility needed to provide a sufficient level of stability for the economy<sup>1</sup>.

The indices of central bank independence, discussed in chapter two, which reflect the monetary arrangements in the respective countries, do not display the existence of a clear-cut inverse relationship between central bank independence and the rate of inflation, as put forward by the literature<sup>2</sup>. Cukierman (1994) refers to indices of central bank independence as the second pillar, the empirical test case, of central bank independence. The difficulty with this kind of analysis is, that it is not really designed to investigate whether inflation is negatively related to CBI, but rather provides the possibility to establish a ranking among different central banks, according to their degree of independence by applying an uniform assessment procedure. An interesting issue in this context is considered by Cukierman (1992) who tried to find measures of actual central bank independence. The limited evidence suggests, however, that there is no significant deviation of the actual conduct of monetary policy from the legal arrangements in industrial countries. The comparison of the monetary regimes in the

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<sup>1</sup> Neumann (1991)

<sup>2</sup> The findings of a study by Havrilesky and Granato (1993) show that only the degree of central bank autonomy explains the comparative inflation performance in the sample countries.

United Kingdom and the Federal Republic of Germany, by applying the index of Grilli et al., shows that the Bundesbank and the Bank of England are based on fundamentally different institutional arrangements. The Bundesbank pursues its monetary policy independent of government directives and has the constitutional responsibility to protect the internal value of the D-Mark. In contrast, the Bank of England lacks political independence since it is subordinate to the government, yet does enjoy a high degree of functional independence in comparison to other central banks.

The conduct of monetary policy and its outcome in the two countries has been examined in great detail in chapter three and four. The inflationary performance of the German economy in the last decades was on average better compared to the record of the United Kingdom. Although there has been a general marked decline in the purchasing power of money in the industrial world throughout the whole post-war period, the comparative data for Germany shows that this decline was less steep.

The comparatively healthy inflationary performance in Germany can be attributed to the continuous pursuit of price stability by the Bundesbank. Its independence from the government and its responsibility for stable prices, as enshrined in the Bundesbank Act of 1957, enabled the German central bankers to follow the path of price stability, even in situations where the government favoured the application of more expansionary monetary measures and where external pressures were imposed upon the Bank to ease the monetary stance. Although the Bundesbank has also paid attention to other objectives over the decades, such as the balance of payments equilibrium, within the interplay of different political interests, the Bank has always regarded its function of safeguarding the currency as its pre-eminent task. The continuous pursuit of price stability by the Bundesbank allowed the building of an ant-inflationary reputation. The difficulties faced by the Bank in meeting the monetary targets announced annually since 1974 were frequently of external origin.



In conjunction with its monetary targeting the Bundesbank's 'pragmatism'<sup>3</sup> has often been stressed, thus, its clear commitment to price stability must have been the decisive factor for building up such high credibility. The Bundesbank's adherence to a tight monetary stance forced on occasions the government to refrain from further expansion of the budget deficit and imposed discipline on the government's decisions. It was for these reasons that the change of government in 1982 did not represent such a complete break with the past as there had been in the United Kingdom in 1979, mainly due to the fact that the Schmidt government had been pledged to a policy of fiscal consolidation. Within the EMS framework the D-Mark served as a monetary 'anchor' for the other currencies in the system, owing to the credibility of German monetary policy. The German monetary record suggests that central bank independence produces better results. Furthermore, the recent attempts in many countries to make their respective central banks more independent and the fact that the statute of the European Central Bank was drawn up closely along the lines of the Bundesbank's statute seem to acknowledge the merits of having an independent monetary authority.

The inflationary record of the past decades in the United Kingdom displays on average a higher rate of inflation and is marked by episodes of steep inflationary upsurges. The negative experiences with the policies of the 1970s also led to a shift towards fiscal consolidation and counter-inflationary policies in the UK after the Conservative government had assumed office. The commitment to fighting inflation was made the centre-piece of the MTFs and inflation was indeed brought down, yet the monetary targeting record is rather poor and seems to display a lack of enthusiasm on the side of the government to adhere to its promise. This commitment of the government to price stability was pursued by using changing devices intended to make it more credible. The changes in such devices are, however, associated with a loss of some credibility and induce a certain degree of instability in the economy.

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<sup>3</sup> Bofinger/Kloten (1995); Issing (1994)

## Conclusion

Britain's departure from the EMS in 1992 urged the authorities to look for another credible framework for monetary policy. The new strategy, which was launched in 1993 committed the government to achieving an annual inflation target<sup>4</sup>. The government is confident that the new approach will have a positive impact on inflationary expectations. Yet the financial markets remain rather sceptical whether this new strategy will impose a credible constraint on the government's future decisions and actions, monetary policy is, despite all these commitments, still at the discretion of the policy makers.

The operational framework and legal status of public institutions is always strongly affected by their past and by the extent to which the present circumstances allow the existing operational and organisational patterns to continue. Historical facts of more recent German history were taken into account in the formulation of the Bundesbank's constitution as factors of decisive importance. Fischer (1994) remarked that the effective independence of the central bank reflects the underlying inflationary preferences of society. All Germans should be thankful that the writing of the Bundesbank's constitution coincided with a moment when a broad anti-inflationary conscience supported the idea of making the new Bundesbank independent from the government.

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<sup>4</sup> Inflation rate targeting is also practised by the Federal Reserve Bank of New Zealand, which has an explicit mandate to achieve an inflation rate not exceeding 2%.

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# APPENDIX



# Appendix I

## Variables for Legal Central Bank Independence

Variable Number	Description of Variable	Weight	Numerical Coding
1	<b>Chief executive officer (CEO)</b>	0.20	
	a. <u>term of office</u>		
	- over 8 years		1.00
	- 6 to 8 years		0.75
	- 5 years		0.50
	- 4 years		0.25
	- under 4 years or at the discretion of appointer		0.00
	b. <u>Who appoints CEO?</u>		
	- board of central bank		1.00
	- a council of the central bank board, executive branch, and legislative branch		0.75
	- legislature		0.50
	- executive collectively (e.g. council of ministers)		0.25
	- one or two members of the executive branch	0.00	
	c. <u>dismissal</u>		
	- no provision for dismissal		1.00
	- only for reasons not related to policy		0.83
	- at the discretion of central bank board		0.67
	- at legislature's discretion		0.50
	- unconditional dismissal possible by legislature		0.33
	- at executive's discretion		0.17
	- unconditional dismissal possible by executive		0.00
	d. <u>may CEO hold other offices in government?</u>		
	- no		1.00
	- only with permission of the executive branch		0.50
	- no rule against CEO holding another office		0.00
2	<b>Policy Formulation</b>	0.15	
	a. <u>Who formulates monetary policy?</u>		
	- bank alone		1.00
	- bank participates, but has little influence		0.67
	- bank only advises government		0.33
	- bank has no say		0.00
	b. <u>Who has final word in resolution of conflicts?</u>		
	- the bank, on issues clearly defined in the law as its objectives		1.00
	- government, on policy issues not clearly defined as the bank's goals or in case of conflict within the bank		0.80
	- a council of the central bank, executive branch, and legislative branch		0.60
	- the legislature, on policy issues		0.40
	- the executive branch on policy issues, subject to due process and possible protest by the bank		0.20
	- the executive branch has unconditional priority		0.00
	c. <u>Role in the government's budgetary process</u>		
	- central bank active		1.00
	- central bank has no influence		0.00

(continued)

Variable Number	Description of Variable	Weight	Numerical coding
3	<b>Objectives</b>	0.15	
	- price stability is the major or only objective in charter, and the central bank has the final word in case of conflict with other government objectives		1.00
	- price stability is the only objective		0.80
	- price stability is one goal, with other compatible objectives, such as a stable banking system		0.60
	- price stability is one goal, with potentially conflicting objectives, such as full employment		0.40
	- no objectives stated in the bank charter		0.20
	- stated objectives do not include price stability		0.00
4	<b>Limitations on lending to the government</b>		
a.	<u>Advances (limitations on nonsecuritized lending)</u>	0.15	
	- no advances permitted		1.00
	- advances permitted, but with strict limits (e.g., up to 15 percent government revenue)		0.67
	- advances permitted, and the limits are loose (e.g., over 15 percent of government revenue)		0.33
	- no legal limits on lending		0.00
b.	<u>Securitized lending</u>	0.10	
	- not permitted		1.00
	- permitted, but with strict limits (e.g., up to 15 percent of government revenue)		0.67
	- permitted, and the limits are loose (e.g., over 15 percent of government revenue)		0.33
	- no legal limits on lending		0.00
c.	<u>Terms of lending (maturity, interest, amount)</u>	0.10	
	- controlled by the bank		1.00
	- specified by the bank charter		0.67
	- agreed between the central bank and executive		0.33
	- decided by the executive branch alone		0.00
d.	<u>Potential borrowers from the bank</u>	0.05	
	- only the central government		1.00
	- all levels of government (state as well as central)		0.67
	- those mentioned above and public enterprises		0.33
	- public and private sector		0.00
e.	<u>Limits on central bank lending defined in</u>	0.025	
	- currency amounts		1.00
	- shares of central bank demand liabilities or capital		0.67
	- shares of government revenue		0.33
	- shares of government expenditures		0.00
f.	<u>Maturity of loans</u>	0.025	
	- within 6 months		1.00
	- within 1 year		0.67
	- more than 1 year		0.33
	- no mention of maturity in the law		0.00
g.	<u>Interest rates on loans must be</u>	0.025	
	- above minimum rates		1.00
	- at market rates		0.75
	- below maximum rates		0.50
	- interest rate is not mentioned		0.25
	- no interest on government borrowing from the central bank		0.00

(continued)

Variable Number	Description of Variable	Weight	Numerical coding
	h. <u>Central bank prohibited from buying or selling government securities in the primary market?</u>	0.025	
	yes		1.00
	no		0.00